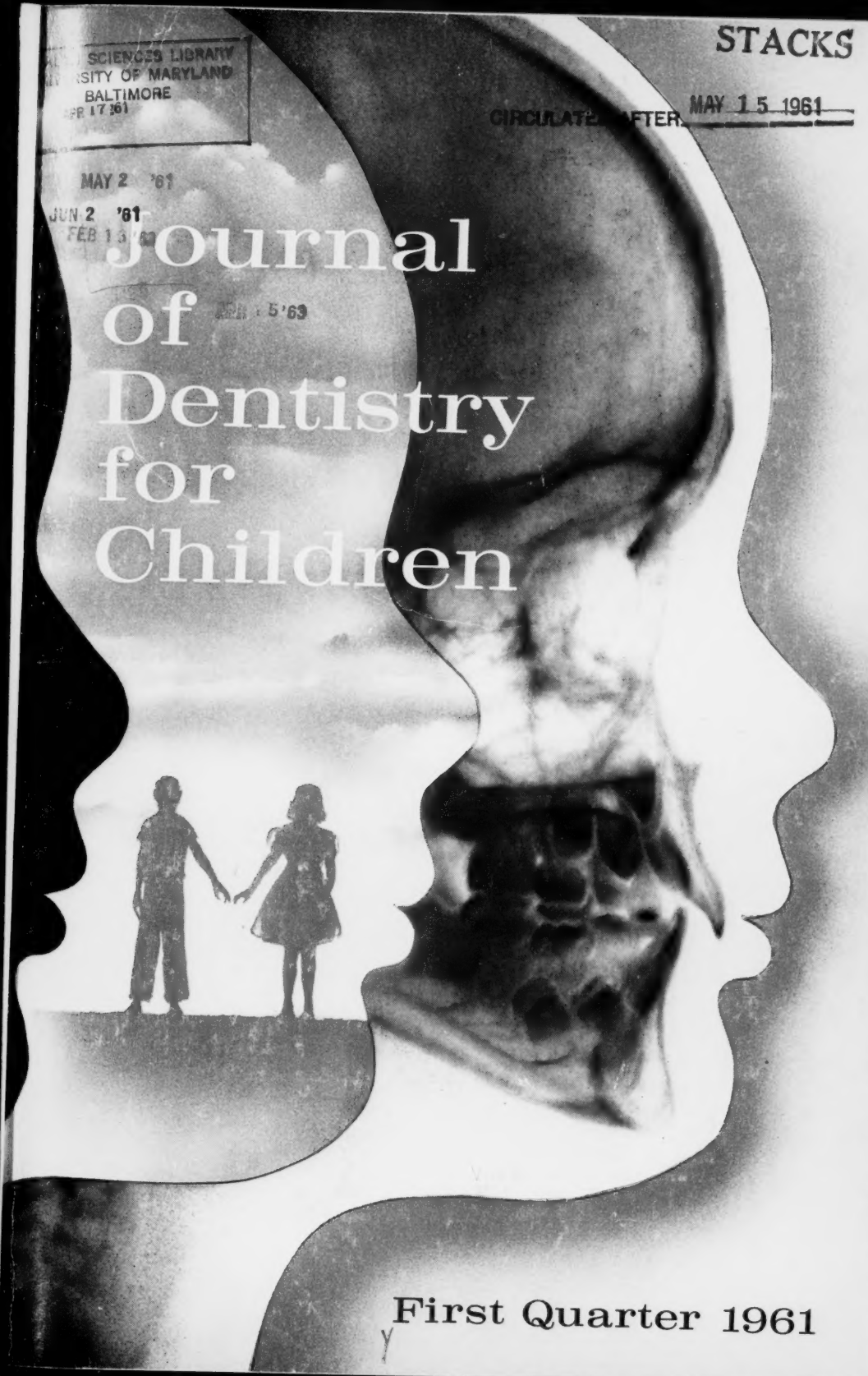
STACKS

SCIENCES LIBRARY
SITY OF MARYLAND
BALTIMORE
FR 17 '61

CIRCULATE AFTER MAY 15 1961

MAY 2 '61
JUN 2 '61
FEB 13 '
APR 5'63

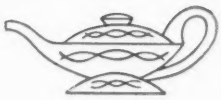
Journal of Dentistry for Children



First Quarter 1961

HEALTH SCIENCES LIBRARY
UNIVERSITY OF MARYLAND
BALTIMORE

No miracle worker



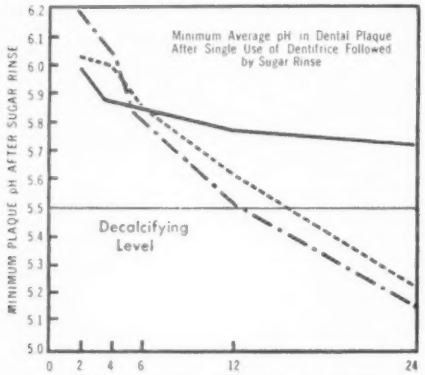
BUT

A scientific aid to caries prevention . . .

Amm-i-dent neutralizes and prevents acids for 24 hours through the synergistic action of two ingredients—High-Urea and SLS.

No other dentifrice offers this combination. No other dentifrice protects against caries as effectively.

Urea, an antacid, penetrates to the tooth pulp, then diffuses outward as oral concentration drops, to maintain a higher pH on tooth surface and plaque.



— Amm-i-dent—High-Urea and SLS combined
---- SLS alone
—·— High-Urea alone

(J. Dent. Children *21*:194 (3rd Qt.) 1954)

SLS is Amm-i-dent's trademark for Sodium N-lauroyl Sarcosinate

SLS, a detergent with bacteriostatic and anti-enzyme properties, adsorbs to enamel and plaque, and is resistant to the flushing action of water and saliva.

Either ingredient alone raises the pH above cariogenic 5.5 for 12 hours . . . *but the combination prevents caries-causing acid for more than 24 hours.*

Patients benefit from this unique formula while enjoying Amm-i-dent's new foaming action and refreshing taste—that's why:

Amm-i-dent is recommended by more dentists than any other dentifrice!

BLOCK DRUG COMPANY, INC. JERSEY CITY 2, N.J.

JOURNAL OF DENTISTRY FOR CHILDREN

Published by

The American Society of Dentistry for Children

Alfred E. Seyler, D.D.S., Editor

18557 East Warren Avenue, Detroit 36, Michigan

Editorial Board

Basil Bibby — Manuel M. Album — Gordon Rovelstad

Contributing Editors

Maury Massler — Kenneth A. Easlick — Manuel M. Album

Zalman Konikow — Ralph L. Ireland — Marvin Davis

Issued quarterly in March, July, September and December. Second-class postage paid at Fulton, Missouri. Subscription price $5.00 per volume (four issues); to members of the A.S.D.C. $2.00 per volume. Single copies $1.50. Member—American Association of Dental Editors.

Subscriptions, changes of address or other business correspondence should be sent to the business office, 7701 Fitzwater Road, Cleveland 41, Ohio.

Publication in the JOURNAL OF DENTISTRY FOR CHILDREN is not to be taken as an endorsement by the Publishers, the Editors or the Editorial Board.

VOLUME XXVIII — *First Quarter, 1961* — NUMBER 1

CONTENTS

From Your President . . . 2

Editorial
The Towel . . . 3

A Practical Method for Reducing Dental Caries in Children Not Receiving the Established Benefits of Communal Fluoridation—*Joseph C. Muhler, D.D.S., Ph.D.* . . . 5

Dentistry for Children—Its Past and Future—*Charles A. Sweet, Sr., D.D.S.* . . . 13

Unit News—*Tiny Konikow* . . . 20

The Most Important Dimension—*George M. Hollenback, D.D.S., M.S.D.* . . . 37

Instructions to Parents for Brushing the Child's Teeth—*Paul Starkey, D.D.S.* . . . 42

Notice . . . 48

1961 Annual Meeting . . . 50-51

The Dental Management of Epileptic Children—*Jerry J. Adelson, D.D.S., Ed.D.* . . . 52

Prescriptions for Pedodontics—*Duane A. Schmidt, D.D.S.* . . . 57

Restorative Procedures for Children With Ectodermal Dysplasia—*Floyde Eddy Hogeboom, D.D.S., F.A.C.D.* . . . 62

Pedodontic Psychology and Premedication—*Howard Aduss, B.S., D.D.S., Rodney S. Bane, B.A., D.D.S., Larry L. Lang, D.D.S.* . . . 73

Comparison of a Single Application of Stannous Fluoride With a Single Application of Sodium Fluoride or Two Applications of Stannous Fluoride—*Victor H. Mercer, D.D.S., and Joseph C. Muhler, D.D.S., Ph.D.* . . . 84

from your president

It is not too early to plan your activities during our Annual Meeting in Philadelphia, and the hard working Annual Meeting Committee will appreciate your early pre-registration.

* * *

As one phase of our stepped-up activities in A.S.D.C., we plan to publish a Directory of Members in June. *If you wish to have your name included, your dues must be paid and in our Central office by April 20.* This is a project requested by our members—make full use of its value by being sure your name is listed for the information of your confreres around the country and abroad.

* * *

We appreciate the efforts of our New York Unit in obtaining some good publicity for dentistry for children in a recent issue of *Time* magazine. This is in line with our stepped-up activities at the national level in the field of public relations—made possible by our recent increase in dues. I shall report to you further in this regard, in a future message.

* * *

I hope you are pleased with the new and striking cover design of our JOURNAL, which is the work of Dr. Marvin Davis of our Michigan Unit, who describes the theme of his design as telling the story, that behind the profile of a child there is *our* responsibility—the basic support of osseous tissue and teeth which provide the pleasing appearance and function necessary to the happiness and health of the individual. This is suggested by the children shown with outstretched hands in play or friendship. I am sure Editor Al Seyler would welcome your comments on the new cover and any other phase of the JOURNAL.

JAMES H. SIMMONS

EDITORIAL

The Towel—(Turkish)*

A wonderful invention. . . . To staunch a gaping wound. . . . To abundantly absorb effusive tears. The exquisite pleasure of its moderately rough texture on one's body after a hot bath or cold shower is unsurpassed. It is used to dry, without crushing, the wet, fragile lettuce leaf. It has been used to bind the hands, mop the brow and dry the hair. It is excellently conceived to stand on bare-footed. It gives great pleasure when rubbed on the naked back to alleviate the itch. It is the best of beach accoutrements . . . used to chase flies, wipe sand off the face, and cool one's neighbor by fanning.

This excellent textile has also been used by dentists to quiet the shrieks and control the thrashing about of children 4 to 8 years of age. By men of decision it is applied resourcefully to the nasal and oral airways. By men of half-decision it is used to shut off only one of these airways. Of course there are men of equally full or partial decisiveness of Judeo-Freudian philosophy who will have no part of the towel, paper or turkish, for partial or full obturation of the external respiratory apparatus.

This becomes the question: In order to gain control of the fighting child patient, should the dentist use a towel over the child's mouth and/or nose? If so, when?

The arguments against its use are:

1. By shutting off the airways it reduces an active child to a passive state and induces fear of being suffocated and killed.

2. There are more effective methods to gain control of an unmanageable child, e.g., sitting on him, holding his hands and legs, talking firmly and gently, distracting him, sending him home.

The arguments in favor of the wondrous towel are:

1. It is the shortest distance between noise and silence.

2. It allays panic and opens the ears to communication.

3. It reduces the panic time decisively and produces a child who can look about with his senses cleared of noise and ready to handle anxieties realistically.

Just as formocresol is a technique for treatment of the necrotic pulp, so the towel technique is one technique for control of the obstreperous

* From the newly activated publication "Your Child Patient," published by the Illinois Society of Dentistry for Children.

patient. The curious difference in certain practitioners' minds between the pharmacologic technique and management technique is that the former is permissible by all practitioners, if not considered the most efficacious. But the latter, management technique, is considered by some practitioners as *never* permissible and not efficacious.

Here now lies the rub and need for debate.

None but the most recalcitrant of modern men, oppose the concepts of ego, super ego, id., defense mechanisms against anxiety and fear of death, more or less. Some children have an omnipotent sense of life, more or less. Some dentists apply psychic or physical trauma, more or less, within the framework of an office environment and their personality to achieve a therapeutic operating base. Can these psychological concepts be applied to the practice of child management?

The psychiatrist or dentist who flatly objects to the use of the towel without several times witnessing the technique in another dentist's hands, within the proper background, is setting up a preconception of behavior in the dental situation without testing its validity.

It might prove interesting if a group of dentists handling children would agree to . . .

1. Criteria on what the anxious, noisy, resistant child requiring operative dentistry is like.

2. Criteria on what is the range of normal for a cooperative, reasonably free of anxiety, child patient requiring operative dentistry. From such agreements, various dentists could participate in a longitudinal study to compare behavioral responses of children with and without the use of the towel. The findings may very well indicate that those that approve its use will find excellent results and those who disapprove of its use will find it disappointing. Perhaps there is a common denominator in the hands of different men using different techniques which produces control without frustration and without pathologic passivity. Perhaps it is not so much what technique is used but what the clinician's feelings are when using it, whom he decides to use it upon and what is the environment in the reception room and operatory prior to the application.

AUBREY LAUTERSTEIN

A Practical Method for Reducing Dental Caries in Children Not Receiving the Established Benefits of Communal Fluoridation*

JOSEPH C. MUHLER, D.D.S., Ph.D.**

THE benefits of fortifying a fluorine-deficient communal water supply with fluorine to the optimal level have been clearly established by repeated clinical studies. It is highly effective, safe, broadly applicable, and low in cost per person per year. No other available method for reducing dental caries is so easily applied on a mass basis. Notwithstanding these pronounced advantages, communal fluoridation has the disadvantage of being limited in benefit to those children who live in an area which has a community water system and a community willing to fluoridate. Dentistry, of course, has realized this limitation and has recognized its responsibility to provide the same benefits to *all* people. While it appears impractical at the present time to feel optimistic about providing the same anticariogenic benefits to rural children at the same low cost, mass application, and high degree of effectiveness as offered by communal fluoridation, there is considerable evidence to suggest that equal benefits can be obtained in a practical manner for rural children through the use of "Multiple Principles of Preventive Dentistry." Actual clinical evidence is available to support the practicality of this idea. In a 30-month clinical study conducted in an optimal fluoride area, it has been shown that by adding another effective preventive tool—topical stannous fluoride—that there is an additive effect of each.[1] One of the most interesting aspects of these data was that in the children receiving the benefits of both communal fluoridation and topical stannous fluoride therapy that there were no new two-surface cavities in any of the carious teeth. Such a finding would suggest, therefore, that when a combination of effective preventive agents are used in one study that the effects may be additive. It is suggested that a practical and highly anticariogenic combination of "Multiple Principles of Preventive Dentistry" would be: (a) communal fluoridation; (b) single application topical stannous fluoride therapy; (c) a stannous fluoride-containing dentifrice; (d) no eating between meals; (e) improved (and good) toothbrushing habits; and, (f) regular visits to the dentist. If it is not possible to use some one of the six mentioned preventive agents, then a more strict and rigid adherence to the remaining five techniques must be practiced in order to obtain the optimal effects.

This paper summarizes the result of a three year clinical study using a combination of two preventive techniques—topical application of stannous fluoride in the dental office using the single application technique and the daily use of a stannous fluoride containing dentifrice (Crest). The choice of this combina-

* This study was supported in part by a grant from The Procter and Gamble Company, Cincinnati, Ohio.

** Professor, Department of Biochemistry, Indiana University Medical Center, Indianapolis, Indiana.

tion is based upon the fact that the effectiveness of topical stannous fluoride therapy decreases with the passage of time after application because the stannous tin content of the enamel decreases with time. This stannous tin lost from the enamel can be replaced by repeating the topical application each six months in conjunction with the routine prophylaxis schedule, thus providing protection for the newly erupting teeth as well as for the new carious lesions which may have developed since the last topical. However, the loss in stannous tin, which is predominately from the carious areas, can be replaced through the use of the stannous fluoride dentifrice.* In effect, the dentifrice provides a daily topical application of stannous fluoride to regenerate, in a sense, the tin content of the pre-carious or carious enamel. The importance of these latter statements rests with the observation that when the stannous tin content of the incipient carious enamel is great enough to produce light brown pigmentation, the carious process becomes arrested. The arrestment remains as long as the pigmentation remains, which in turn is a function of the stannous tin content of the carious enamel. The factors affecting enamel pigmentation and caries arrestment following stannous fluoride therapy have been discussed in greater detail in a previous publication.[2]

* Commercially available factory production Crest-brand dentifrice. This dentifrice has received a Group "B" classification by the Council on Dental Therapeutics of the American Dental Association.

Experimental

A total of 509 children, ages 6 to 15 years, all of whom resided in Bloomington, Indiana, were included in this study. Each child was given thorough clinical and radiographic examinations, and assigned to one of two groups balanced according to past dental caries susceptibility by methods previously described.[3] The age and sex distribution of the subjects at the initial examination is shown in Table I and the balance of groups in terms of average initial DMF surfaces is found in Table II. All of the children received a thorough prophylaxis

TABLE I

AGE AND SEX DISTRIBUTION OF SUBJECTS AT INITIAL EXAMINATION

	Control			*Dentifrice Plus Topical*		
Age in Years	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL
6	2	5	7	4	7	11
7	6	10	16	5	10	15
8	15	18	33	14	15	29
9	17	13	30	16	20	36
10	15	19	34	20	25	45
11	10	9	19	13	16	29
12	10	11	21	9	14	23
13	11	16	27	9	10	19
14	14	11	25	17	6	23
15	17	4	21	8	3	11
16	3	7	10	5	6	11
17	3	4	7	3	4	7
Totals	123	127	250	123	136	259

TABLE II

AVERAGE INITIAL DMF SURFACES OF SUBJECTS STARTING THE TEST

	Control	*Dentifrice Plus Topical*
Number of subjects	250	259
Total DMFS	3,246	3,225
Average DMFS	12.98	12.45

and the topical applications were done immediately thereafter using techniques already described.[4] One group received a single topical application of distilled water and a non-fluoride-containing dentifrice and those in the other group received a single topical application of an 8 per cent solution of stannous fluoride and, in addition, received a commercially available stannous fluoride dentifrice. None of the children received any instruction on the use, or the frequency of use, of the dentifrice, but were told only to use it in accordance with their usual oral hygiene practices. The composition of the stannous fluoride dentifrice was identical to that described and used by Jordan[5] and Peffley.[6] At intervals of 6 months, 12 months, 18 months, 24 months, and 36 months after the initial treatment, the children were re-examined by the same dentist, radiographed and received another prophylaxis and topical application of stannous fluoride, 8 per cent.

Data and Discussion

The dental caries data obtained in this study are found in Table III. This table shows a comparison of the effect of the treatments on the incidence of new dental caries at the various examination

TABLE III

Reductions in dental caries in children expressed in terms of new caries in only those teeth present at the initial examination comparing a group of children receiving a topical application of water each six months plus the daily use of a non-fluoride dentifrice and another group receiving a single topical application of stannous fluoride each six months plus the daily use of a stannous fluoride-containing dentifrice throughout a three year period

Group	*No. of Subjects*	*Dental Caries Increments* DMFT	DMFS	*% Reduction* DMFT	DMFS	*Probabilities* DMFT	DMFS
		6 Month Examination					
SnF_2 Topical + SnF_2 Dentifrice	233	0.34	0.69	61	65	0.0006	0.0006
Control	230	0.86	1.97	..	..	..	..
		12 Month Examination					
SnF_2 Topical + SnF_2 Dentifrice	230	0.58	1.31	58	58	0.0001	0.0001
Control	220	1.38	3.15	..	..	..	..
		18 Month Examination					
SnF_2 Topical + SnF_2 Dentifrice	215	0.84	2.08	59	56	0.0001	0.0001
Control	200	2.04	4.72	..	..	..	..
		24 Month Examination					
SnF_2 Topical + SnF_2 Dentifrice	199	1.04	2.64	58	55	0.0001	0.0001
Control	193	2.49	5.91	..	..	..	..
		36 Month Examination					
SnF_2 Topical + SnF_2 Dentifrice	156	1.34	2.81	57	63	0.0001	0.0001
Control	158	3.11	7.60	..	..	..	..

times when expressed in terms of either the DMFT or DMFS indices. These data indicate that 6 months following the initial examinations the group treated topically with distilled water and who used a control dentifrice had a mean increase of 0.86 DMF teeth and 1.97 DMF surfaces. The group which received both the topical stannous fluoride application and the stannous fluoride dentifrice had a mean increase of 0.34 DMF teeth and 0.69 DMF surfaces. When the differences between groups are expressed in terms of DMFT and DMFS indices they represent reductions of 61 and 65 per cent, respectively.

At the final examination three years after the start of the study the data showed a three year caries increment of 3.11 DMF teeth and 7.60 DMF surfaces for the control group and an increment of 1.34 DMF teeth and 2.81 DMF surfaces for the group receiving the combination treatment of stannous fluoride topical application and stannous fluoride dentifrice. The differences between groups represent reductions of 57 per cent in new carious teeth and 63 per cent in new carious surfaces over the 3-year period.

The data obtained at the end of 12, 18, and 24 and 36 months indicate reductions in dental caries experience of the same order of magnitude as those observed at the end of the first 6-month period. The reduction at the end of each time period were all highly significant as indicated by the low probabilities that the differences could have occurred by chance (Table III). This comparison of treatment effects as a function of time is interesting in that it suggests that little information was gained by extending the study beyond the 6-month period. Progress in clinical research would certainly be accelerated if we had sufficient information to recognize those cases in which a 6-month test would be adequate. It should be mentioned that the low attrition of subject numbers over the 3-year study period would tend to maintain more constant composition of the groups than usual. One would expect such an occurrence to retain better comparability of groups throughout the test.

When the components of the DMF surface index are examined for their 3-year increments (Table IV) in the two groups, the marked effectiveness of the combined procedures is again evident. In all instances, the combination technique resulted in less dental caries, with the greatest effectiveness in the proximal surfaces, a finding similar to the result obtained when the combination of communal fluoridation and topical stannous

TABLE IV

The caries increments expressed as components of the DMF surface index and the dental caries balance at the end of the three year period in those present both at the initial and final examinations

	Control	*SnF_2 Topical Plus SnF_2 Dentifrice*	*Per Cent Reduction*
Proximals	4.84	1.16	76
Occlusals	1.71	1.06	38
Buccal-Linguals	1.04	0.58	44
Average initial DMFS of subjects who completed the 3-year clinical test	11.61	11.10	

TABLE V

A comparison of the DMF surface increments in the two groups at each of the 6-month examination periods when the teeth erupting during the test are used for comparative purposes

	Teeth Erupting During Study			*All Teeth*		
Examination Period (in Months)	Control	SnF_2 Topical Plus SnF_2 Dentifrice	Per Cent Reduction	Control	SnF_2 Topical Plus SnF_2 Dentifrice	Per Cent Reduction
6	.15	.05	66	2.12	.74	65
12	.32	.10	69	3.47	1.41	59
18	.78	.43	45	5.50	2.51	54
24	1.21	.59	51	7.12	3.23	55
36	2.75	1.03	63	10.35	3.84	63

fluoride therapy was used.[1] The caries balance of the two groups at the end of the three-year period is also shown in Table V.

The data in Table III are presented in the usual manner of comparing the increments in new carious teeth and surfaces which were present at the initial examination and excluding all new carious teeth and surfaces which erupted during the test. Since this test is conducted throughout a three-year period there were in many instances as many teeth erupting as were present at the initial examination. It is of interest to know the effect of the combined treatments on these teeth and Table V presents such a comparison. Such data also show the highly effective results of the combined procedures on caries reduction and suggest that such a technique is to be highly encouraged as an anticariogenic procedure since it provides good evidence of significantly reducing caries in those teeth and surfaces erupting since the last topical. As a result, the tooth will not decay at such a rate that the effect of the combined procedures will not be effective in reducing the highly susceptible newly erupting surface.

While the reductions in dental caries as expressed in terms of the DMF teeth and surface indices are in themselves impressive, they may not represent the most practical aspect of these data for the general practitioner who asks himself or is asked by his patients—What can I expect from a series of topicals for the individual child? Table VI shows a breakdown of these data which are most useful in helping to answer such a question on an individual as well as a collective basis. In Table VI is listed the frequency of occurrence of all new lesions found in all of the children during the three-year study period for each of the two study groups. For example, if a parent asks what they could expect from a series of such topical stannous fluoride treatments, a logical reply could be that if their children had been in such a study program and had the least benefit from the topical stannous fluoride treatments that the *most new carious lesions* a child would have had in three years would be 14. However, if the individual patient had been in the control group he could have had as many as 50 new lesions in the same period. In the control group there was not a single child that remained caries-free during the three-year study period, while in the stannous fluo-

TABLE VI

Frequency of total new carious lesions in each of the two groups during the 3-year study period

Frequency of new carious lesions occurring during 3-year study period	*Control*		*SnF_2*	
	Number of children in this frequency group	Percentage	Number of children in this frequency group	Percentage
0	0	0	28	18.1
1	7	4.1	19	12.4
2	7	4.1	23	14.8
3	16	10.3	16	10.3
4	4	2.7	14	9.0
5	10	6.5	14	9.0
6	8	5.3	11	7.2
7	12	7.9	7	4.1
8	9	5.9	3	2.0
9	14	9.0	4	2.7
10	9	5.9	5	3.3
11	3	2.0	7	4.1
12	5	3.3	1	0.6
13	12	7.9	2	1.2
14	1	0.6	2	1.2
15	9	5.9	0	
16	6	4.1	0	
17	3	2.0	0	
18	4	2.7	0	
19	0		0	
20	0		0	
21	2	1.2	0	
22	2	1.2	0	
23	1	0.6	0	
24	1	0.6	0	
25	3	2.0	0	
26	2	1.2	0	
27	1	0.6	0	
28	0		0	
29	0		0	
30	1		0	
31	2	1.2	0	
—				
—				
37	1	0.6	0	
—				
—				
40				
—				
—				
—				
50	1	0.6	0	
		100%		100%

ride group 28 children, or 18.1 per cent, had no new lesions at all during the same period. In the stannous fluoride topical group, 80 per cent of all of the new lesions are represented by the group comprising the number 0 to 6 new lesions, while in the control group only 33 per cent of the children were within this same range of new carious lesions. It is impressive from a preventive dentistry viewpoint to note from the contents of Table VI that all of the lesions in the stannous fluoride topical group are bunched in the smaller increments figures, while in the control group the occurrence of 10 to 20 new carious lesions per child is not uncommon.

Of equal importance to the general practitioner is the dramatic effect that the stannous fluoride topicals had on preventing the incipient lesions from increasing in size during the study period. Frequent mention has been made of the fact that one of the greatest preventive dentistry attributes of topical stannous fluoride therapy is its ability to produce unesthetic enamel pigmentation which is associated with caries arrestment.[2] In this paper actual figures representing this phenomenon are shown in Table VII. In the control group 24 per cent of the class "a" lesions failed to increase in size during the study period in contrast to 62 per cent of the lesions in the stannous fluoride group which similarly failed to increase in size. Of even greater significance, is the fact that only 10 per cent of the class "a" lesions in the stannous fluoride group progressed to class "c" while four times this number, or 42 per cent, increased to size "c" in the control group. The importance of repeated applications of stannous fluoride is considered to be the most important single factor concerning this aspect of caries arrestment, and good evidence suggests that once the pigmentation is lost due to loss of stannous tin ions from the carious lesion, the lesion will begin to increase in size. Thus, frequency of application at least each six months in a highly caries susceptible child is considered of paramount importance to assure a high content of stannous tin in the carious enamel and to maintain enamel pigmentation.

TABLE VII

A comparison of the increase in size of *the* initially present lesions during the 3-year period

	Control	SnF_2
Percentage of lesions failing to increase in size during study*	24	62
Percentage which increased to size "b"	34	28
Percentage which increased to size "c"	42	10

* A lesion of size "a" is of such a size that it ranges from the smallest detectable incipient lesion to one representing less than ¼ the size of a single tooth surface; one represented by size "b" is from ¼ to ½ of a single tooth surface, and size "c" is a carious lesion greater in size than ½ of the tooth surface.

One frequently wonders just what role topicals have in the dentists' armamentarium. Table VIII shows a breakdown of a portion of the data obtained in this study in an attempt to show how important the use of topicals can be not only in the saving of teeth but in the patients' economy. A count of all of the new lesions which developed in all of the children in the control group during the three-year period was 1,640 new lesions. A similar figure for the children in the stannous fluoride group was 612. In terms of 1,000 children, a figure very easy to obtain in almost any community by a group of even 2 or 3 dentists, a stannous fluoride topical application

TABLE VIII

A comparison of the total number of new carious surfaces in the two groups with the saving in money as a result of the topical treatments

	Control	SnF_2
Number of new carious surfaces in study group	1,640	612
Number of new carious surfaces per 1,000 children	10,513	3,923
Number of new carious surfaces prevented from becoming carious as a result of topical stannous fluoride therapy, per 1,000 children	6,590	
Saving in dental fees per 1,000 children as a result of topical stannous fluoride therapy	$32,950	
Saving in dental fees as a result of topical stannous fluoride therapy per child in study	$33	

program would save a total of 6,590 new carious lesions. If all of these lesions were considered uncomplicated one surface restorations, simply for matters of discussion, this could easily amount to a saving of $33 per patient. Such a saving in dental lesions and dental fees will go a long way in preventing socialized dentistry especially from those who advocate that dentistry cannot provide service to *all* people, and to answer the complaints of some who say that dentistry is only interested in providing service and has no real tool to help the national economy.

Conclusion

The most effective mass reduction of dental caries is afforded by communal fluoridation. In communities or rural areas not able to fluoridate, the use of more than one effective anticariogenic agent may produce cumulative effects. In order to test this hypothesis in a non-fluoride area, a three-year clinical test was conducted in which a group of young children receiving topical applications of distilled water each 6 months and who used a non-fluoride dentifrice daily were compared with another group receiving a single application of stannous fluoride each six months and who in addition used a commercially available stannous fluoride dentifrice daily. The results at each six month re-examination period indicated the significant reduction offered by the combined procedures. When the data were analyzed in terms of the frequency of total new carious surfaces in the control and stannous fluoride groups, it was shown that the most new surfaces decayed in any treated child during the entire three-year study was 14, while in the control group it was 50. Similarly, evidence is presented to show that the size of the carious lesions in the stannous fluoride groups failed to increase as rapidly as those in the control group. Such findings as these strongly suggest that the use of "Multiple Principles of Preventive Dentistry" are not only practical to use, but highly effective.

REFERENCES

1. MUHLER, J. C.: The Anticariogenic Effectiveness of a Single Application of Stannous Fluoride in Children Residing in an Optimal Communal Fluoride Area. II. Results at the end of 30 months. J.A.D.A., 61:431, 1960.
2. The Ability of Topically Applied Stannous Fluoride to Produce Caries Arrestment as Evidenced by Enamel Pigmentation. J. Dent. Child., 27:157, 1960.
3. MUHLER, J. C., RADIKE, A. W., NEBERGALL, W. H., and DAY, H. G.: The Effect of a Stannous Fluoride-Containing Dentifrice on Caries Reduction in Children. J. Dent. Res., 33:606, 1954.
4. MUHLER, J. C.: Single Topical Stannous Fluoride Application Technique. J. Dent. Child., 25:306, 1958.
5. Jordan, W. A. and Peterson, J. K.: Caries-Inhibiting Value of a Dentifrice Containing Stannous Fluoride: Final Report of a Two-Year Study. J.A.D.A., 58:42, 1959.
6. PEFFLEY, G. E., and MUHLER, J. C.: The Effect of a Commercial Stannous Fluoride Dentifrice Under Controlled Brushing Habits on Dental Caries Incidence in Children. J. Dent. Res., 39:871, 1960.

Dentistry for Children—Its Past and Future*

CHARLES A. SWEET, SR., D.D.S.**

THE PAST

THE first part of my story is historical because I wish to acquaint you with the past so that you may realize the birth and growing up of dentistry for children was befraught with many obstacles.

In 1865 the first dental clinic for child mouth hygiene was established at Strasburg, Germany and in 1878 attention was called to the importance of prevention of mouth diseases in talks by President Eliot of Harvard University. In 1896 J. Leon Williams introduced the slogan "A Clean Tooth Never Decays."

In 1909 President Theodore Roosevelt called the first White House Conference on Child Health. In 1910 the Rochester Dental Society established a clinic for children and the Forsyth Dental Infirmary of Boston was founded, although it did not get into operation until January 1915.

In 1912 the Atlanta-Southern Dental College, now a part of Emory University, established a chair of preventive dentistry. In 1915 the first Eastman Dental Infirmary was established in Rochester, New York and in this same year came the birth of the topic of fluorides in an article by G. V. Black and F. W. McKay entitled "Mottled Teeth" as observed in certain localities in Colorado.

In 1916 I entered the University of California Dental School in San Francisco. Having completed several of the required subjects in dentistry it was my good fortune to become a reader or assistant in several courses, one being Inorganic Chemistry taught by John E. Gurley, D.D.S. Well do I remember sitting on the steps of the dental school and Doctor Gurley talking to me about the needs and future of dentistry for children, for as early as 1908 his attention had been turned to the great dental neglect of children. We were taught to place temporary cement fillings and extract abscessed primary teeth with no mention of maintaining space or of growth and development.

During my senior year in 1918 we witnessed the first injection of a marvelous new local anesthetic imported from Germany called "Novocaine" that could be used to eliminate any discomfort in the removal of a tooth without any or few side effects. No mention was made of its use in restorative dentistry. In the early part of 1919 we seniors had the privilege of listening to Dr. John Buckley, a professor from the Chicago College of Dental Surgery, discuss a new drug he had just prepared called "Formo Cresol" that would sterilize root canals and eliminate pulpal infection when properly used.

Also, it was my good fortune to have an older brother, Tom, a 1916 graduate from dental college who came to Los Angeles for a preceptorship in orthodontics with the then nationally known orthodontist, Dr. Ray Robinson. Located in the same building was the famous amalgam man Dr. Walter G. Crandall, originator of Crandall's zinc-free alloy. In the same offices was a young freckled-faced dentist who was an extremely capable operator and a dedicated student

---

* Presented at a banquet of the Diplomates of the American Board of Pedodontics, Los Angeles, California, October 16, 1960.

** Charter Member—American Board of Pedodontics.

affectionately referred to by his friends as "Speck"—none other than the renowned Dr. George Hollenback. At that time he was working on a centrifugal casting machine which was perfected the latter part of 1919 and which eliminated the necessity of casting by hand swinging a "cow bell." Meeting these dentists and learning second-hand from my brother, their teachings had a profound influence upon me.

After World War I my brothers, Clifford, the pediatrician, Tom, the orthodontist, and I decided to locate in Oakland, California. Their practices being limited to children necessitated my endeavoring to render services for the child patient that would be lasting and eliminate oral infections. In those days we were quite proud when we placed a restoration in a primary tooth that at the end of a year was giving a satisfactory service and did not show any pulpal infection.

Naturally, in this quest for knowledge, I turned to my teacher, Dr. Gurley, who knew dentists over the country who had given more thought and had developed technics in the practice of dentistry for children. In fact, Dr. Gurley had gone to Seattle to work with a Dr. H. C. Puckett who should be considered the father of dentistry for children. In the Third Quarter 1952 issue of the JOURNAL OF DENTISTRY FOR CHILDREN in an article "Dr. H. C. Puckett—Pioneer in Children's Dentistry" Dr. Gurley writes—"The writer went up to Seattle and spent several days in close association with him (Dr. Puckett) and was surprised to note that the same type of dentistry was being practiced for children as for adults with slight modifications in cavity preparation and root canal technique due to the difference in anatomy of the primary teeth.

"He administered novocain for extraction and cavity preparation in that early day using block or conduction anesthesia. He taught the writer how to prepare cavities and how to use amalgam of that day, which was difficult to use without pulp injury."

May I pause for a moment to pay my respects to Dr. Evangeline Jordon of Los Angeles and San Francisco, the mother of dentistry for children, author of our first text, who was always willing to share her knowledge and experiences with others seeking to learn and render proper health services for the child. She advocated restoring primary teeth with copper amalgam, treating non-vital primary teeth, but probably her greatest contribution was developing a treatment for primary teeth with vital exposed pulps using a "Novo Devitalizing Wafer" that made it possible to keep many primary teeth in the mouth for their allotted time without showing any clinical evidence of infection.

Also in this era was a Dr. Thomas of Minneapolis, a practicing orthodontist, who was frequently on the "Chautauqua Circuit" bringing attention to the great neglect of children's primary dentition and first permanent molars and its subsequent damage to total health causing crooked teeth. His enthusiasm was contagious, causing many of us younger dentists to accept the challenge of attempting to provide adequate dental care for children.

In 1920 Dr. Paul Barker of Denver, who had limited his practice to children, and who is the father-in-law of "stainless steel crown" Bill Humphrey, was invited to present a paper at the meeting of the California State Dental Association. At that time he was a strong advocate of Red Copper Cement as a filling material for primary teeth as it was supposed to

give a better marginal seal, have greater lasting qualities than other cements, and also have a germicidal effect on the tooth structure which would reduce the incidence of pulpal necrosis. Some of these claims have just been substantiated in the September 1960 issue of the *Journal of the American Dental Association* in an article by Going, Massler, and Dute. His forceful, dynamic presentations created much interest and many discussions. We here on the Pacific Coast were beginning to hear about Dr. Floyde Eddy Hogeboom who had limited his practice and was teaching at the University of Southern California. Also in Los Angeles was Dr. Minnie Proctor, limiting her practice and a strong advocate and excellent clinician on restoring pit and fissure cavities in first permanent molars with gold foil restorations. She not only contributed much in her lifetime but left her estate to the University of Southern California Dental School known as the Minnie Proctor Fund to be used in the study of dentistry for children.

In the latter part of 1921 an older dentist, Dr. Harry Carlton, then practicing in Oakland, formerly Professor of Operative Dentistry at the Chicago College of Dental Surgery and the University of California Dental School, asked me if I would consider going to the Chicago midwinter meeting in February 1922 and "pack his suitcase." He intended to return to Chicago to renew old friendships as this would be his last trip away from home.

After much discussion with my family it was decided that it would be a good idea for me to go to the big city of Chicago which was then the "mecca of dentistry."

After 3 days and nights on the train we arrived at the Northwestern Terminal with a welcoming committee of Drs. C. N. Johnson, John Buckley, Hart Goslee, and others to greet their friend and colleague, Dr. Carlton. This was a momentous occasion for me to be included, come to know several of the authors of texts I had used in College, and to have entry to the dental colleges and the Chicago midwinter meeting.

It was arranged for me to meet a young dentist, Dr. F. Blaine Rhobotham, who was the head of the Department of Dentistry for Children at Northwestern University Dental School. Also, he maintained an office for the exclusive practice of dentistry for children, and when I say exclusive I do mean exclusive, in the Pittsfield Building in downtown Chicago. Blaine was the talk of the town when dentistry for children was mentioned and had all the latest knowledge on the subject. Practically nothing had been written so all information was obtained by word of mouth, or private clinics, in some other dentist's office, and at meetings in someone's room, if you were so privileged.

It was indeed fortunate that, through this contact with Dr. Carlton and the fact Dr. Gurley had been my teacher and vouched for me, I was accepted and included with what was then considered the most learned group of dentists anywhere in the world.

At this meeting Dr. Rhobotham and I became close friends and, until his untimely death in the early forties, we were frequently in contact with one another as he and Dr. Gurley were my favorite critics. While attending this meeting Blaine introduced me to a Dr. Haidee Weeks from New Orleans who had attended Northwestern, and while attending College was the laboratory assistant to the father of modern dentistry, Dr. G. V. Black. She was called "Miss

Dixie." As the years went by Dr. Weeks became a valued consultant.

Also at this meeting was a friend of Dr. Rhobotham, a dapper young dentist from Detroit, seriously interested in dentistry for children, Dr. Sam Harris, the one to conceive the idea of a society of dentistry for children that became a reality in 1927 to be known as the American Society for the Promotion of Dentistry for Children.

Through these contacts, the influence of Dr. Gurley, and the pressure from my brothers, in July 1922 I gave up the general practice of dentistry and limited my practice to "Operative Dentistry for Children and Dental X-ray."

Immediately following 1922 other names began to appear on programs and in the literature such as McBride and Easlick of Michigan, Sullivan of Boston, McCrum and Clayton of Kansas and Missouri, and Bierman of Minnesota.

Just prior to or immediately following 1927 it seemed as though the skies opened up as our A.S.D.C. Society was born. Also, we now had a section in the American Dental Assn., thanks to Drs. Gurley and Rhobotham, who knew their way around with those who were in office or were influential in the American Dental Association. But better yet, Brauer, Ireland, Lamons, McFall, Ruth Martin, and others came onto the horizon and began to carry the ball. Time does not permit me to go into details but we should not forget many others who have made outstanding contributions such as Paul Losch, Jack Pelton, Mott Erwin, Sid Kohn, Joe Cohen, and Sandy MacGregor of Toronto (best known for the MacGregor eyes that tamed the wildest!!).

Another historical event was in 1927, when Dr. F. Blaine Rhobotham, under the auspices of the Georgia State Dental Society presented the first refresher course in dentistry for children. In my opinion the word refresher could have been deleted to better describe the course, since few dentists had little if any knowledge of Pedodontics!

In 1931 I was asked by the Board of Dental Examiners and Board of Health in Oregon to present refresher courses under their sponsorship, spending 6 weeks traveling from town to town endeavoring to present to dentists authentic information and methods of practice for children that would be successful and bring a fair economic return. Following this experience I spent about three months of each year as a visiting instructor for State Departments of Health, dental colleges, and dental societies until 1941 when I settled down with my base of operation at the College of Physicians and Surgeons in San Francisco with my close friend, the Dean of the College, the late Ernest G. Sloman. Ernie, in my opinion, was the greatest contributor to dentistry that I have ever known, with a deep interest in dentistry for children. He was a challenge to everyone who knew him to emulate and when the "going got tough" or assistance was needed, financial or otherwise, you went to see "Uncle Ernie" to put your troubles on his shoulders. Few knew he lived by the motto so well known to every member of the A.S.D.C., "Little can be accomplished for grown-up people; the intelligent man begins with the Child."

The Children's Fund of Michigan was established in 1929 with an outright gift of 10 million dollars and a second White House Conference on Child Health and Protection was called by President Hoover. In 1930 a dental clinic for children was established by J. O. Samuels at Providence, Rhode Island and the W. K. Kellogg Foundation was established and

in 1933 initiated a program of health services for children aimed at utilizing local resources.

In 1935 Chief Justice Charles Evans Hughes handed down a decision which forever placed dentistry in a position to regulate conduct of its own members. You who are from states that have specialty laws can be thankful to this great Chief Justice for this decision.

Dentistry for children has matured and is now being referred to as Pedodontics, is given recognition and placed alongside of all other dental specialties, and in 1940 the American Society for the Promotion of Dentistry for Children became the American Society of Dentistry for Children. About this time the Council of Dental Education of the American Dental Association requested the A.S.D.C. to study and make a report on a Board of Pedodontics to examine and certify candidates. A committee was appointed consisting of Brauer, Easlick, Ireland, Lamons, Losch, Pelton, and Sweet. After much study a preliminary approval by the Council of Dental Education was received but World War II interrupted so actual implementation was delayed. Finally approval was obtained from the Council in 1947 and the first examination was held at Northwestern University following the Chicago midwinter meeting February 11-12, 1949.

Since then I am sure every one of you is familiar with the happenings and history, so may we now discuss the future.

THE FUTURE

Even with an increase in knowledge and interest in pedodontics, and an increase in numbers of dentists per capita in most heavily populated areas, we have not had a decrease in attack by caries and other dental diseases.

Muhler states in the June 1960 issue of the *Journal of the American College of Dentists*—"Are we losing the battle for the control and prevention of dental caries? In many ways dental scientists must answer affirmatively, for reliable statistical evidence shows that caries is more prevalent in some areas today than it was in 1900. No clearer picture of this serious problem is available than from evidence provided by the Selective Service System from the dental and medical records of recruits drafted for Military Service during World War II."

In the May 1959 issue of the *Journal of the American Dental Association* in the preamble to an article "Survey of Dental Health of the Naval Recruit" by our own Gordon Rovelstad and associates it states—"The state of dental health of young men reporting for military duty is deplorable. Dental caries and the consequences of the neglect of caries are the most common health problems of young adults."

I also quote from the California State Department of Education 1958 publication "California Fitness Project—How the Emphasis on Fitness Started," a report that shocked the President and headlined the nation's news in July 1955. The report "European children were more fit than American children. This shocking conclusion was based on the results of the administration of the Kraus Weber Tests for Muscular Fitness to 4,300 eastern United States youths (age 6-16) and 2,900 western European youths. About 58 per cent of the American group failed one or more of the six tests; only about 9 per cent of the European group had such failure."

From personal reports of persons serving on national and state physical fitness committees, discussing this lack of fitness and also suggesting programs to motivate

public participation to improve fitness, it has been continually brought to our attention that the greatest health problem of our youth is dental diseases. A second contributor of importance is obesity and if dental diseases and obesity could be eliminated, or at least greatly reduced, then our youth would begin to compare more favorably physically to the young men and women in other parts of the world.

Public Education

In my work as Supervisor of Dental Health Education in the Oakland Public Schools, we are continually having brought to our attention the importance of obtaining excellence in education, as the supremacy of the western world, including the United States, has been dramatically challenged. The result has been an awakened interest and a determination of our people to improve education.

How can we diplomates awaken a similar public interest in Dental Health; since we should be aware that the major causes of physical unfitness are dental disease and poor nutrition? One of our missions must be to bring to the attention of our educators and civic leaders the importance of better dental health practices and a knowledge of proper nutrition. This is paramount if we are to add another freedom—"Freedom from Disease."

Professional Education

Besides these civic responsibilities you have a professional duty to disseminate scientific information and methods of practice to the entire dental profession. With your background and knowledge you must assume leadership in the further developments of the practice of dentistry for children through research studies, preparation of texts and scientific articles, demonstrations, and as a teacher of other dentists.

Board Examinations

We should also make available to dentists who wish to improve their knowledge and clinical practices in the art and science of pedodontics, programs and facilities that will qualify one to take the examination of our American Board of Pedodontics without the present requirement of a formal education leading to a master's degree or the equivalent thereof. I recognize that some restrictions and requirements are necessary; such as a minimum number of years of practice, limitation of practice, or demonstrating a definite interest in pedodontics through teaching, preparation of materials, membership in societies, hospitals and clinic staffs whose major interest is in the health and welfare of the child patient.

I am dedicated to high standards but I am also desirous of giving every dentist an equal opportunity to demonstrate his knowledge and abilities. As you well remember the American Board of Pedodontics examinations have been all-inclusive and require knowledge and demonstrations of greater than average abilities which have aimed at perfection.

Let's keep our present high standards, or even make them higher, but offer the examination to more dentists—particularly those who now, or in the future, will limit their practices to dentistry for children.

Many dentists are unable to avail themselves of graduate study but would find it possible to take postgraduate courses with a preceptorship under the supervision of a diplomate in preparation for a Board examination. Even in failure to qualify as a diplomate, the re-

wards would be great since the educational benefits and knowledge gained in methods of practice will improve the services to the child patient and give an immeasurable amount of self-satisfaction.

Specialty Regulations

With this suggested program we can then work toward uniform specialty laws in all states to protect the public from recent graduates and others not qualified, who masquerade as a specialist by just the limitation of practice.

Socio-Economic Influences

We, the diplomates, should realize the days of individual enterprise are rapidly coming to an end. Groups are dominating the individual so that collective barganing is an established procedure. These inroads on private practice are using the child patient as an entry to a complete program of control of our profession. Therefore, you as diplomates, have the added responsibility of maintaining our American way of private practice.

The solution of these problems is going to necessitate your attention and serious consideration if in the years to come the practice of pedodontics maintains its rightful leadership in the profession of dentistry.

LIBRARY S-O-S

The Central Office has frequent calls for back issues of the JOURNAL OF DENTISTRY FOR CHILDREN from libraries for binding into complete volumes for reference purposes, and from men studying for advanced degrees. Most issues before 1950 and many of the 1950 to 1960 issues (especially 1st Quarter) are completely out of stock. If any members have JOURNALS which they are willing to contribute or sell, please inform the Executive Secretary which copies are available for these worthwhile purposes.

DR. C. F. TUMA
Executive Secretary
7701 Fitzwater Road
Cleveland 41, Ohio

Unit News

JOURNAL *gets a "new face"—Terrific!!!!*

Many State Units active in student membership drive. . . .

National and State dues should have been paid by NOW. . . . Are you a delinquent????

Next JOURNAL *deadline is April 25. . . .*

Pre-register for 1961 Annual Meeting October 13, 14, 15, 1961, Bellevue-Stratford Hotel, Philadelphia, Pa.

TINY KONIKOW

Arkansas

O. J. Ratcliff from Arkansas reports that their Unit had a meeting on November 7, 1960 at the Arlington Hotel during the Arkansas State Dental Seminar. Paul Young of the State Dental Health Department, presented an informative lecture on "The Importance of Children's Health in Public Health."

Phillip Jay, Ann Arbor, Michigan, will be the guest speaker at the Unit's Annual meeting which will be held in April during the Arkansas State Dental convention.

Northern California

Reporter Jerome Leitner reports that the new officers of the Northern California Unit are:

President	Lynn Rudee, Kentfield
Pres.-Elect	Claude Warden, Walnut Creek
Vice-President	Lee Winters, Concord
Sec.-Treas.	Winston Edie, Berkeley

President Lynn Rudee has appointed John Bier as chairman for the Seminar meeting which will be held at a dude ranch in California. Watch for publicity on this!

Southern California

Executive Secretary Lorraine Duncan came through with this news of the Southern Cal Unit. On November 28, 1960 a meeting was held in the Rodger Young Auditorium at 6:30 p.m. Wilmer C. Hansen, Ass't Professor of Surgery, College of Medical Evangelists, Loma Linda, California gave a most interesting lecture on "The Cleft Palate Patient."

Russell Haney, Ph.D., gave a most informative presentation on "To Tell the Truth" at The Dentist and His Assistant Meeting on January 23, 1961. It covered communication between the doctor and patient and the role of the assistant in the relationship. There was a large attendance of dentists and their assistants and everyone went away with

a lot of new ideas to improve the dentist-patient-assistant relationship.

On February 12-15, 1961, the Unit sponsored the Tenth Annual Postgraduate Conference at Ojai Valley Inn, Ojai, California. The clinicians were: Ralph L. Ireland, Dean, College of Dentistry, University of Nebraska; and Emanuel Cheraskin, School of Dentistry of the University of Alabama.

The next meeting will be held on March 27, 1961 and is the Annual all day program. Robert Meese, associate of Charles Tweed of Tucson will be the guest speaker. His presentation will include:

Diagnosis
Serial extraction plan
What to expect from serial extraction
Complications which may alter the end results
Orthodontist and Pedodontist relationship and their ability to understand each other's problems.

Lorraine also reported that the Annual meeting on April 24 promises to be an interesting one with Ed Halverson who will relate his experiences while touring Russia and their dental schools.

Colorado

Lou Dubin is back again and reports that the Colorado Unit met in November at the Denver Athletic Club with Maury Massler as guest speaker. His lecture on "Emotional Growth of the Child" was most interesting.

In January, during the Denver Dental Association Midwinter meeting, the Unit met at a luncheon meeting and enjoyed a talk by Byron Hollingshead. Jack Eisenson and Wendell Fitzgerald were busy during January examining school children in thirty Jefferson County schools. Vincent Kruzick, as chairman of the Denver Dental Association Health Committee, recruited 120 men to donate their services in examining children in the orphanages. Those children needing dental care were transported on Febrary 7, 1961 to over 70 dental offices by the Dental Auxiliary Women. Necessary dental work was performed on over 250 children as the Unit's contribution to Dental Health Week. Bill Humphrey and Vince Kruzick are also lining up a roster of dentists who will care for children in the orphanages in the area on a year round basis.

Lou Dubin lectured to the Visiting Nurse Association on January 27 at their Cerebral Palsy Seminar. He spoke on "Oral Care of the Handicapped and Palsied Child" and was assisted by Esther Eichert of the State Health Department who covered the essentials of good diet with special emphasis on proper dental diets.

Dental Health Week was observed by giving the general public a well rounded program on dental health through publicity on radio and TV programs. Olaf Jacobson and Jay Meade were interviewed on radio stations KDEN and KMOR. Bill Ginsburg was on the "Denver at Night Show" and Bill St. John was interviewed by a top TV reporter, Starr Yelland. Others who appeared on TV and Radio shows were: Dave Stone, Ernie Klein and Don Walden.

The Annual Seminar on May 12, 13, 1961 will be held at the new Pinehurst Country Club in Denver. Dr. Wilmer Eams of Glenwood Springs, Colorado and Dr. John Revel of Shafter, California will be guest speakers. Their respective topics "Amalgam Technic" and "New Procedures in Surgery for Children" promise to be interesting and enlightening.

Walt Zeeb and Jack Eisenson have returned just recently from Paris, France where they gave clinics. Bill Cody pre-

sented a clinic at the Chicago Midwinter meeting and Bill Humphrey attended meetings in Dallas and Seattle where he presented clinics on stainless steel crowns.

From this report, Lou, it sounds like the Colorado Unit has really been busy!

Connecticut

From past president, Irv Eichenbaum, comes the yearly activities of the Connecticut Unit. Basil Bibby from the Eastman Clinic lectured on "Research Concepts of Dental Caries" at the September 1960 meeting.

On January 25, 1961, the Leo Winter Study Group from Springfield, Massachusetts, under the direction of David Webber presented an all day program on "Dental Care for Children." The following five aspects of this topic were covered:

Periodontal Problems in Children—Dr. Weiss
The Child With a Cleft Palate or Lip—Dr. Fox
Pre-Orthodontic Diagnosis—Dr. Licht
Surgical Problems in the Child—Dr. Meir
Use of Chrome Steel in Children—Dr. Webber

The Spring Postgraduate program scheduled in April 1961 will feature two guest speakers from the School of Dentistry, University of Michigan, A. Richards who will speak on "Radiography" and Wm. E. Brown whose topic will be "Operative Dentistry."

Members wishing information on the above program, please write to: Dr. I. W. Eichenbaum, 24 Washington St., New Britain, Conn.

Delaware

Roland V. Reed, Jr. reports that word has been received that the Executive Council of the American Society of Dentistry for Children has unanimously voted to accept the newly organized Delaware group as a participating Unit.

The charter for the Delaware Unit will be presented formally at the Annual meeting of the ASDC in Philadelphia on October 14, 1961.

Officers of the Unit are as follows:

President	Fred Lutz
President-Elect	Gilbert Kates
Vice-President	Ronald Collins
Sec.-Treas.	Walter Bartoshesky

The membership totals 34.

The date of the first formal meeting of the Unit was January 16, 1961 with Dr. Manuel Album and Dr. Robert Spangler from the Pennsylvania Unit participating at the inaugural meeting. Manny Album described the function of the National organization (ASDC) and Bob Spangler spoke on the mechanisms of operation of a State Unit.

The second half of the meeting was devoted to a round table with all members participating. The round table was conducted by Fred Lutz, Joseph Brady and Roland Reed. Topics that were discussed were: "Fees" and "Management of the Child Patient." Twenty-five dentists were in attendance at this meeting.

Again, a hearty welcome, Delaware!

Florida

Tony Shows came through with this news of his Unit. During the First Annual Pedodontic Seminar held in Gainesville on January 16, 17, 18, 1961, such lectures as "Operative Dentistry and Appliances"; "Pulp Therapy and Removable Prosthetic Appliances"; "Interceptive Orthodontics and Habit Appliances"; and "Pedodontics for the General Practitioner" were presented. These lectures were given by Ken Lawrence, Kansas City; Roy Lindahl of the University of North Carolina; Sid Kohn of Fairleigh Dickinson University. A series of outstanding table clinics were given

by the DeMeritt Study Club of Chapel Hill, North Carolina.

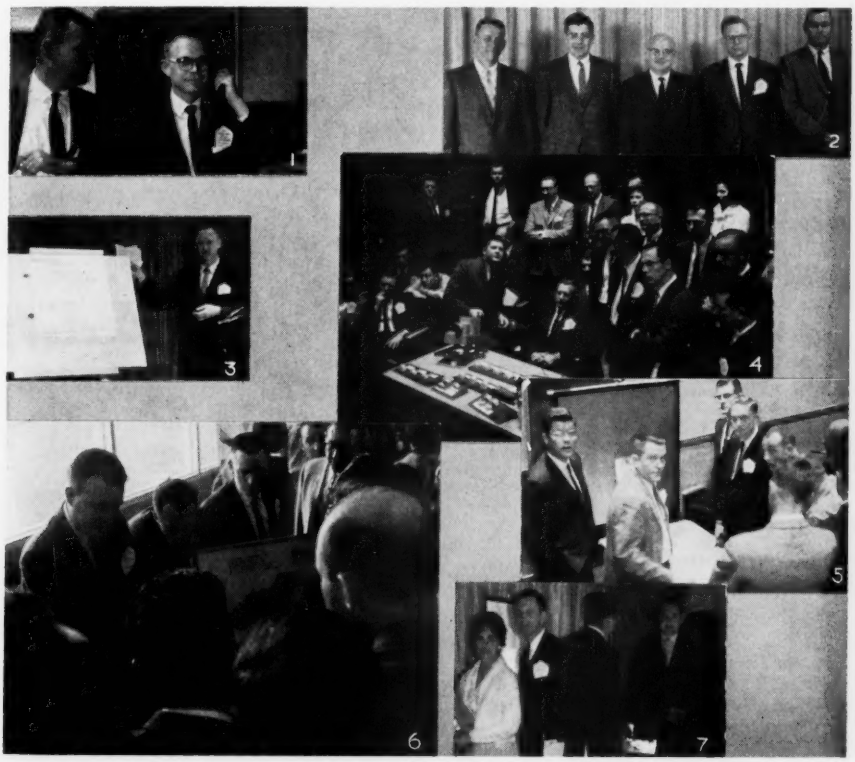
Ninety-seven attended the meeting with representation from eight states and Canada. Plans are in the making for the Second Annual Workshop to be held in February 1962 at Gainesville.

Hawaii

Here is the news from the Hawaii Unit via William S. Nakagawa. The Hawaii Unit held its Annual election of officers on October 24, 1960 with the following being elected:

President	Warren Wakai
President-Elect	Katsumi Miyano
Secretary	William Nakagawa
Treasurer	Walter Lung

The guest speaker at the Annual meeting which was held at Elliott's Chuckwagon was Francis W. Summers of La Canada, California. Dr. Summers is an outstanding pedodontist and was one of the principal essayists at the Pan-Pacific Dental Conference which was held in Honolulu in October. His subject was "Premedication, Co-medication and Balanced Medication."



(1) Roy Lindahl with Charlie Fain arranging the 1962 Seminar. (2) Left to right: Lou Marchand, Gainesville, chairman of Seminar; Ken Lawrence, Kansas City, Mo.; Sid Kohn, Fairleigh Dickinson University; Roy Lindahl, Chapel Hill, N. C.; Charlie Fain, Daytona Beach, Florida. (3) Helt Bausley, Warsaw, N. C. member of Warsaw Study Club giving lecture on "Motivation." (4, 5, 6, 7) Scenes of Table Clinics in the DeMeritt Study Club.

The first Pedodontic Seminar sponsored by the Hawaii Unit is to be held at Kona, Hawaii on May 5, 6, 7, 1961. Dr. Charles A. Sweet, Jr. of Oakland, California will be the clinician and essayist, enlightening all present on the subjects of "Space Maintenance" and "Tooth Guidance." Should time permit, he may present other clinics on the "Management of the Pulp of Primary and Young Permanent Teeth" or "The Treatment of Fractured Anterior Teeth." Table clinics are also being planned by the members of the Hawaii Society of Dentistry for Children.

Sight-seeing trips, fishing and other recreation and social activities will also be available in this famous relaxing resort town of Kona and vicinity on the island of Hawaii.

There shall be a charge of a nominal registration fee for this seminar. For further information or to register, contact Dr. K. B. Chun, 444 Uluniu St., Kailua, Oahu, or telephone 268615. All members of the American Dental Association are cordially invited.

Idaho

The Idaho Unit joined the Montana Unit in a meeting at Canyon Village, Yellowstone Park at which time Ben Rabinowitch of Beverly Hills, California gave a very fine program. The following officers were elected for the coming year:

President	J. L. Mauk, Pocatello
President-Elect	Charles Hansen, Nampa
Sec.-Treas.	Glen Miller, Jr., St. Anthony

It was decided that the Idaho Unit would be responsible for the arrangements of the next joint meeting of the Idaho and Montana Units. An invitation will be extended to ASDC members in Wyoming and Utah (who have not as yet organized their own State Units).

Plans are being made for a "bang up" meeting in Jackson Hole, Wyoming, in May with lots of "Wild West" flavor and a good clinician. The dates have been set for Sunday, May 28, and Monday, May 29, 1961 which will allow good traveling time since Tuesday, May 30 is a holiday. For further information, please write to one of the above officers.

Illinois

Marv Kozlov as new Unit News reporter sends in this news. The Illinois Unit elected the following officers for the year at a recent meeting:

President	Jane Selbe
President-Elect	Ronald Rothenburg
Vice-President	Robert Way
Secretary	Mark Mendelsohn
Treasurer	Bill Rogers

Norman Olsen, chairman of Pedodontics at Northwestern University spoke on "Management of the Child Patient" at a recent meeting of the Unit while Henry Fineburg, psychiatrist, covered the topic "The Psychological Handling of Children."

Through the efforts and work of many of the members of the Illinois Unit, a most successful Midwinter meeting of

Illinois Midwinter Meeting. Left to right: Burt Gilbert, past president; Jane Selbe, president of the Unit; Robert Way, vice-president of Illinois Unit; Jim Simmons, president of ASDC.

Members and guests at the Midwinter meeting luncheon.

the Chicago Dental Society was held on February 5, 6, 7, 1961 with headquarters at the Conrad Hilton Hotel. Thomas K. Barber of the University of Illinois and Norman Olsen of Northwestern gave limited attendance and projected clinics. Asher Sherow moderated the breakfast conference and Theodore Ferguson of Loyola University with Marv Kozlov of the University of Illinois gave table clinics.

Kenneth Wessels, guest speaker at the luncheon meeting of the Unit presented an interesting lecture on "Past, Present and Future of Pedodontics."

The Chicago Dental Society inaugurated its first Children's Dental Health Day on the afternoon of February 5 at the McCormick Place. Twelve thousand chlidren from the Chicago area attended, and amazingly, only 16 were lost!

The beautiful Wagon Wheel at Rockton, Illinois will be the site of the Annual Spring Seminar on April 12, 13, 1961. Sumter Arnim, Director of the Postgraduate School of Dentistry, University of Texas will discuss "Personalized Oral Hygiene." Sheldon Rosenstein, Assistant Professor of Orthodontics at Northwestern University has chosen "Interceptive Orthodontics" for his lecture.

Robert Way, Jane Selbe, Jim Simmons and Elsie Gerlach.

The Illinois Unit is proud of its development of an eight page publication entitled "Your Child Patient." The editors are Marvin Kozlov and Aubrey Lauterstein and they hope to serve the needs of the members with this publication.

Louisiana

Frank Herbert did this nice bit of reporting of the newest Unit (Louisiana). The second meeting since organization coincided with the New Orleans Dental conference in November 1960. Despite the fact that the Unit is still in its infancy, the meeting was well attended. In December, the Unit cooperatd with the Loyola University Dental Alumni Postgraduate committee in sponsoring a two-day refresher course in Dentistry for Children. It was conducted by Sid Kohn of New Jersey and thirty-three dentists attended. It was so successful that plans are being made to have this joint sponsorship of a Pedodontic course become an Annual affair.

The next meeting will be held during the annual meeting of the Louisiana Dental Association at Lafayette, La. in

Dr. Edward J. Hannie of Lafayette, La., left, president of our Louisiana Unit, presents the Unit's charter to Dr. Frank J. Houghton of the Loyola University School of Dentistry, which will serve as custodian of the charter which was granted at the 1960 Annual Convention in Los Angeles.

May 1961. Hope to hear more from you, Frank, as time goes on and your Unit flourishes.

Maryland

The first meeting of the Maryland Unit was held at the Marylander in Baltimore on September 15, 1960. The meeting featured a fine essay on "The Treatment of Fractured Anterior Teeth in Children" by Arnold Feldman, an endodontist from Baltimore. On September 18, 19 and 20, 1960, the Unit met again at the Turf Valley Country Club. It was incident to the semi-annual meeting of the Maryland State Dental Association, which, by Constitution, establishes the time and place of the semi-annual meeting of the Maryland Society of Dentistry for Children.

Both organizations presented an exhibit of educational materials at the Annual meeting of the Maryland State Teachers Association on October 13, 14, 1960 at the Armory of Maryland's "Dandy Fifth" Regiment in Baltimore. As in 1959, it was manned by volunteer dentists and auxiliary personnel.

The second meeting was held in the Lord Baltimore Hotel, Baltimore, on the evening of November 9, 1960. Dr. Herbert K. Cooper, professor of cleft palate therapy at the University of Pennsylvania and director of the famed Lancaster Cleft Palate Clinic, delivered a most interesting and informative discourse on the treatment of the cleft palate and the

DR. KOHN LECTURES AT LOYOLA UNIVERSITY IN NEW ORLEANS

Dr. Sidney I. Kohn, professor of dentistry for children at Fairleigh Dickinson University, Teaneck, N. J., is shown with Dr. Frank J. Houghton, dean of the School of Dentistry at Loyola University in New Orleans. Dr. Kohn conducted a post-graduate clinic in pedodontics sponsored by Loyola's Dental Alumni Club. A Unit of the American Society of Dentistry for Children has been formed in Louisiana and the Loyola School of Dentistry has been designated as custodian of the chapter's charter granted by the national organization. Dr. Edward J. Hannie of Lafayette, La., is president of the Louisiana chapter.

rehabilitation of the child, with particular reference to team work involving the fields of surgery, orthodontics, prosthodontics and speech therapy.

A third quarterly meeting was held February 16, 1961 with Ernest F. Ritsert, professor of Children's Dentistry at Temple University, lecturing on "Operative Procedures in Primary Dentition."

The Maryland Unit anticipates that the program in 1961 will be even better than in the year past and that the Unit will continue to grow, not only in membership but in ever increasing usefulness to the profession and to all children in need of dental services.

Officers for the year are:

President	William Schunick
President-Elect	Allie Skib
Vice-President	John H. Sharpley
Sec.-Treas.	Benjamin S. Crosby, Jr.

Thanks for the nice reporting, H. B. McCauley.

Michigan

The Executive Council of MSDC has directed Bill Graetz and his committee to complete a proposed Constitution by March 15, 1961. After it has been finalized and reviewed by the Council, it will be presented at the May meeting of the Unit for member approval.

A concerted drive will be launched for student memberships during the next few months. Chairman Pierce McLean with committee members, Len Bartoszewicz, Dick Christl and Bill Graetz will conduct a drive among the Junior and Senior students at the University of Detroit. The Juniors and Seniors of the University of Michigan will be contacted by Chairman Walter Niemann and his committee, Ray Sawusch, Joe Engelman and Will Fletke. The members of these committees will approach the students through the Pedodontic Department of the Dental schools. As an incentive for more students to join, the Executive Council voted that the Michigan Unit would pay one-half of the student membership fee thus making the dues $1.00 to the student.

Presentation of proclamation issued by Louis C. Miriani, Mayor of Detroit, designating February 5-11, 1961 as Children's Dental Health Week. Left to right: Carroll W. Kennedy, president of Detroit District Dental Society; Richard Christl, co-chairman of Children's Dental Health Day; Zalman Konikow, president of MSDC and chairman of Children's Dental Health Day, receiving proclamation from Ray Pearson, Mayor's secretary. Front row: Kim and Lisa Konikow.

Joe Engleman reports that the 13th Annual Children's Dental Health Day was co-sponsored by the Michigan Unit and the Detroit District Dental Society. It was held at McGregor Memorial Bldg., Wayne State University on Wednesday, Feb. 15, 1961. There were 350 in attendance. Dr. Clinton C. Emmerson, Assoc. Professor and Chairman of the Pedodontic Dept., University of California was guest lecturer on the Sci-

EXECUTIVE COUNCIL MEETING

Standing, left to right: Len Bartoszewicz, Joe Engelman, Bob Murray, Bill Graetz and Pierce McLean. Seated, left to right: Ray Sawusch, President "Tiny" Konikow, Vice President Dick Christl and Sec.-Treas. Walter Niemann.

entific Program. The following were his subjects:

Dentistry for Children Made Pleasurable
The Management of Injured Anterior Teeth: A Biologic Approach
Pulpal Therapy for Primary and Young Permanent Teeth

The evening program "Dentistry as a Career" was most successful with 250 students and sponsoring dentists in attendance. Each student received a kit with brochures pertaining to phases of Dentistry or Dental Hygiene and pamphlets from dental schools, etc. These kits are also being placed in school libraries for use by the Counsellors of each school in the County. Wally Niemann's visual aids on "Dentistry as a Career" was one of the high-lights of the evening.

The idea of co-sponsorship with different District Dental Societies is "catching on." The first Fall meeting will be co-sponsored with the Jackson District Dental Society at Hotel Hayes, Jackson, Michigan in November 1961 with guest speaker, Ralph McDonald.

A booth of pre-registration for the National meeting in Philadelphia in October will be set up by Hugh Kopel and Bill Graetz at the April meeting of the Michigan State Dental Association.

The Michigan Unit invites all members, wives and hygienists, and dental students to the Spring meeting in Ann Arbor. Arrangements are being made for a day of golf at the Barton Hills Country Club in Ann Arbor, followed by a dinner meeting at the Michigan Union. James Simmons, president of ASDC will speak on "Practice Management."

We are proud of Marvin Davis, a member of the Unit, who designed the new cover for the JOURNAL.

Minnesota

The "Gophers" are still doing a great job! Here's what Ned Brown has to re-

JANUARY MEETING OF MINNESOTA UNIT

Left to right: Treasurer, Don Hurwitz; president, Ray Peterson; Mel Holland, clinician for the meeting; Manfred Jacobson, member of board of directors; secretary, Jerome Ulrich; and board member, Bob Boller.

port. At the January meeting of the Unit, sixty graduate members and twenty-five student members were present and heard a stimulating presentation on "Oral Surgery for the Child Patient" by Mel Holland, assistant to the Dean of the University of Minnesota Dental School. Earl Nightengale's new thought-provoking movie "The Strangest Secret" was also shown. Plans were made at this meeting to undertake a project of supplying needy children in the area with kits containing a toothbrush and tooth paste.

On February 21, the Gophers gathered for a meeting at the Normandy Hotel for a panel discussion on "Vital Pulp Therapy." The discussion was led by Harold Wittich, chairman of the department of Pedodontics at the Dental School and James Jensen, chairman of the department of Endodontics, University of Minnesota.

Merritt Pederson of Lincoln, Nebraska, conducted an all day Seminar on "Your Future—Make It Pay" in March. This Seminar was planned for dentists and their wives and was held at the Normandy Hotel in Minneapolis on March 21.

Any colleagues who have not availed themselves of membership in ASDC, may do so by writing to: Jerome Ulrich, 711 W. 76th St., Minneapolis, Minn.

Montana

Fred R. Schwin reports that the Montana Unit now has 85 members. At a business meeting on January 20, 1961, the Unit accepted an invitation for a co-sponsored meeting with the Idaho Unit. It will be held in the Spring at Jackson, Wyoming and an effort will be made at that time to aid in the organization of two new Units, Wyoming and Utah.

President Pete Feda of Wolf Point has appointed a membership committee with Wayne Thompson of Bozeman as chairman and an increase in membership is expected.

New Jersey

"Shorty" Gale sends this interesting news of his Unit. The one day Seminar held in November was most successful with Dr. Ralph E. McDonald of Indiana as lecturer. The following presented table clinics at the Annual meeting in February:

Radiographic Interpretation in Pedodontics—S. John Chellemi
Endodontic Problems in Pedodontics—Joseph Pollack
Recent Advances in Gold Foil Restorations for Young People—Ralph Terrace
Removable Orthodontic Appliances for Minor Tooth Movement—Robert D. Moyer and Edward J. White, Jr.
General Anesthesia for Children—Charles E. Murphy
Aids in Behaviour Management of the Child Dental Patient—Walter Schwartz
Gingival Lesions in Children—Bernard S. Moskow
Interesting Case Histories Involving Prosthodontics for Children—Henry C. Rivetti

The clinics were followed by a cocktail hour and dinner. At a short business meeting, the following officers were elected:

President	Wilfred W. Jordan
President-Elect	Elias Lisman
Vice-President	Robert E. Brenner
Sec.-Treas.	Natalie E. McDonald

Following the business meeting, guest speaker, Dr. Wilton Krogman of th University of Pennsylvania, gave a most informative lecture on "Growth-Timing and Its Relation to Teeth and Jaws." The New Jersey Unit is proud of Natalie McDonald who organized and instituted the first dental program in the schools of Engelwood; also, Al Lisman and Walter Schwartz on their fine article on "Treatment of the Handicapped Child under General Anesthesia" which was recently printed in the *N. J. State Dental Society Bulletin.*

New Mexico

From down Mexico way comes this news via Max Wagner. Election of officers was held at the November 9 meeting at the Trade Winds Motel in Albuquerque, with the following being elected:

President	John E. McReynolds
Vice-President	Isidor Voda
Sec.-Treas.	Max Wagner

A University of New Mexico Seminar was held on January 30-31, 1961. All dentists in the State were sent an invitation and the attendance was very gratifying.

New York

Notes of interest from Joseph H. Kauffmann of the Oral Hygiene Committee of New York: The 13th Annual Children's Dental Health Week was celebrated the week of February 5-11, 1961. Times Square in Manhattan was converted to Children's Dental Health Square to inaugurate the campaign.

Publicity was given through the media of radio, television and newspapers. Display cards were placed in the subways, buses, and supermarkets throughout the city. Forty personages of public renown together with PTA groups and other organizations cooperated in sponsoring the Annual program. The message of "Dental Health Through Education" reached a new pinnacle of achievement during Children's Dental Health Week.

This report would not be complete without giving recognition to Harold K. Addelston who was recently written up in *Time* magazine as the pedodontist whose motto is "Tell, Show, Do." Nice going, Harold!

North Carolina

From Roy Lindahl comes this fine report. The North Carolina Unit closed out a rather successful year with a two day seminar which was held in Raleigh, N. C. at the College Inn. The featured speakers were Ralph McDonald and Joseph Muhler, both from the University of Indiana School of Dentistry. Their presentations provided a very well balanced program between the research activities and the clinical practice of dentistry for children.

The following officers were elected for the year:

President	Horace Reeves, Jr.
President-Elect	Roy L. Lindahl
Sec.-Treas.	Kermit Knudtzon

The first formal activity of the new year will be a Seminar to be held in Chapel Hill on April 6, 1961. Featured clinicians will be Sid Kohn of Fairleigh Dickinson University School of Dentistry and Herman Becks of the University of California School of Dentistry.

The North Carolina Unit is looking forward to a good year and is putting forth great efforts to increase the membership through an active campaign with the dental students at the School of Dentistry and through the members of the North Carolina Dental Society.

Ohio

In spite of the freezing weather in Ohio, Cleveland had a record breaking crowd of more than 3,000 in attendance at the Children's Party which was held on Sunday, January 22, 1961 in conjunction with the 21st annual observance of Children's Dental Health Day. R. E. Basista, chairman of the Dental Party, welcomed the children and their parents. Henry E. Kelly, president of the Cleveland Dental Society, expressed his gratitude for the great interest shown in dental health. Fifty-two schools participated in a poster contest. In all 2,403 posters were submitted and winners received prizes.

Robert E. Crowe, chairman of the Dental Slogan contest, awarded prizes to Carol Lusnia, age 8, and Mark Heideloff, age 10, for outstanding slogans.

Captain Cleantooth (Sanford Neuger) was on hand to greet the audience. Mr. Theodore Andrica of the Cleveland *Press* introduced five acts of folk dancing which was furnished by the Cleveland Folk Arts Association. Dental Health movies were shown after which several acts of professional entertainment were enjoyed. Toothbrushes, tooth paste, balloons, etc. were distributed to each child. It was another great day for happy smiles!

Jerome L. Gillig, new reporter for the Dayton section reports that the following officers were elected at the meeting on November 16, 1960:

President	Eugene Huffman
Vice-President	Alan Hall
Sec.-Treas.	Jerome Gillig

From William Davenport comes this news of the Stark County Section. The quarterly meeting was held on September 6, 1960 in the McKinley Room of the Onesto Hotel, Canton, Ohio. Fourteen members were in attendance. The following officers were elected:

President	Robert Porter
Vice-President	D. Carroll Steele
Sec.-Treas.	William J. Davenport

Pennsylvania

The 1961 Convention Co-ordinator, Manny Album, committee chairmen

and committee members have been forwarding special announcements and program previews. Early registration will aid the planning committee with their arrangements.

Meeting:	1961 ASDC Annual Meeting
Place:	Bellevue-Stratford Hotel Philadelphia, Pa.
Date:	October 13, 14, 15, 1961

Make YOUR reservation *N O W !*

Rhode Island

From the "little" State, Stuart A. Manchester reports that the Jack M. Wisan Memorial Luncheon meeting was held at the Biltmore Hotel on January 17, 1961. Guest speaker, Norman Becker, Forsyth Dental Infirmary for Children, gave a most interesting and informative lecture on "Having Fun With Children's Dentistry."

John W. Hein, Dean and Professor of Preventive Dentistry, Tufts University School of Dental Medicine, was the guest speaker at the February 6 meeting which was held at Johnson's Hummocks. His topic was "New Horizons in Dentistry" and was most informative and interesting.

Texas

The next meeting of the Texas Unit will be held on Sunday, April 30, 1961 in the Castilian Room of the Shamrock-Hilton Hotel, Houston, Texas with Joseph C. Muhler and James R. Roche as guest speakers. Dr. Muhler will present "Practical Approach to Caries Control" and Dr. Roche has as his topic, "Parent Management."

Virginia

Charlie Vincent from the Virginia Unit has this to report: The long heralded Pedodontic Workshop was held at Natural Bridge, Virginia on November 3, 4, 5, 1960 with sixty-six dentists in attendance from six states and the District of Columbia. The scenery was beautiful, the food excellent and the program outstanding with Bill Kramer from Nebraska, Henry Wilbur from Louisville and Robert Senescue, professor of Psychiatry, Medical College of Virginia School of Medicine, as the instructors. It was a most successful workshop.

PEDODONTIC WORKSHOP, NATURAL BRIDGE, VA.

Left to right: C. J. Vincent, R. A. Senescue, W. S. Kramer, and H. M. Wilbur.

PEDODONTIC WORKSHOP, NATURAL BRIDGE, VA.

Left to right, front row: J. A. Menius, B. A. Belew, B. A. Braun, S. E. Saunders. Back row, left to right: C. B. Barnett, Greenville, S. C., M. D. Sargent, associate professor of Pedodontics, M.C. Va.

Pedodontic Workshop, Natural Bridge, Va. Part of group attending lecture.

Members of the Unit are looking forward to the next meeting which will be held in Roanoke on April 30, 1961 just prior to the Virginia State Dental Association meeting. Guest speaker will be Stephen C. Hopkins, Sr., from Washington, D. C. He will present a paper on "The Orthodontist Talks to the Pedodontist."

Washington

Correspondent David B. Mooers reports that the Washington Unit held its mid-Winter meeting on January 13, 1961 at the Edmund Meany Hotel in Seattle with 86 dentists and 45 dental assistants in attendance. On January 14, 1961, the meeting was held at the Ridpath Hotel in Spokane and was attended by 44 dentists and 40 dental assistants.

John L. Woehler, member of the American Academy of Practice Administration, was the speaker at both sessions. His presentations on "Practice Administration" and "Public Relations" were enthusiastically received.

President Neil Beasley presided at the meeting and also at the Executive Council meeting where plans were formulated for programs for the year and a membership drive.

Israel Society of Dentistry for Children

The Israel Society of Dentistry for Children was officially organized on December 14, 1960 and its first meeting was held at the Hebrew University, Jerusalem on December 15, 1960. The following table clinics were presented:

Cavity preparation
The Use of Dental Matrices
Dental Filling Materials

Officers were elected as follows:

President ..... Dr. Rosenzweig, Jerusalem
Vice-President ..... Dr. Cohen, Tel Aviv
Secretary ..... Dr. H. Berger, Tel Aviv

Congratulations, Israel! ASDC members will be interested in hearing of your Society's progress.

Canadian Society of Dentistry for Children

Bob Margolis reports that the Alberta Chapter of the Canadian Society of Dentistry for Children held their meeting on Saturday, November 7, 1960. A very enlightening program was presented by clinicians Robert Morrow and James Condon of Spokane, Washington.

Elected as officers for 1961 are:

President ..... Bohdan Kuzyk
Sec.-Treas. ..... Bob Margolis

Academy of Dentistry for the Handicapped

The Eighth Annual meeting of the Academy of Dentistry for the Handicapped was held at the Conrad Hilton Hotel in Chicago, Sunday, Feb. 5, 1961, with 112 members and guests present.

President Max Bramer introduced M. Michael Cohen, who presented a fine paper on "Classification, Characteristic Etiology of Mental Subnormality."

Max S. Sadove, director of the Department of Anesthesia, University of Illinois, gave a most interesting lecture on "Office Anesthesia for the Dental Handicapped Ambulatory Patient."

Unfortunately, Robert Kaplan, of Camden, N. J. was snowbound and unable to present his paper on "Office Management of the Handicapped Patient." Hugh Kopel, Z. Konikow, and Sam Stulberg, ably "pinch hit" for him and discussed the timely subject.

Arnold Steinberg, and Max Bramer closed this successful meeting with a fine discussion and illustration on "Simplified Radiographic Survey and Auxiliary Aids for the Handicapped."

Kenneth A. Easlick Graduate Society

May 14, 15 and 16, 1961 will witness a gathering of the graduates from Dr. Easlick's department of Dentistry for Children at Ann Arbor, Michigan. Dr. Harry Sicher and Dr. Joseph Muhler will be essayists, and panels on current and pertinent problems in the practice of Pedodontics will be presented by the members in attendance.

Invitations have been sent to all members. Those desiring another announcement of the program may write to: Laren Teutsch, Sec'y, 4124 Farnum St., Omaha 31, Neb.

Library S-O-S

The Central Office has frequent calls for back issues of the JOURNAL OF DENTISTRY FOR CHILDREN from libraries for binding into complete volumes for reference purposes, and from men studying for advanced degrees. Most issues before 1950 and many of the 1950 to 1960 issues (especially 1st Quarter) are completely out of stock. If any members have JOURNALS which they are willing to contribute or sell, please inform the Executive Secretary which copies are available for these worthwhile purposes. Please contact Dr. C. Frank Tuma, Exec. Sec'y, 7701 Fitzwater Rd., Cleveland, Ohio.

Course Announcements

Address inquiries concerning the following course to Division of Postgraduate Education, University of Illinois College of Dentistry, 808 S. Wood St., Chicago, Ill.

Course in Children's Dentistry, March 20-24, 1961 (For general practitioner)

This course is under the direction of Dr. Thos. K. Barber, associate professor of pedodontics.

* * *

The West Virginia University School of Dentistry is introducing its first series of postgraduate refresher courses this year as follows:

P.G. 4. Refresher Course in Root Canal Therapy, W. R. Biddington, one day a week, March 29, April 5, 12, 19.

P.G. 11. Practical Periodontics for the General Practitioner, C. M. Fraleigh, April 7-8.

P.G. 1. Refresher Course in Crown and Bridge Prosthodontics, J. F. Johnston and J. D. Adams, April 10-11.

P.G. 5. High Speed Instrumentation, R. E. Sausen and W. F. Braasch, April 14-15.

P.G. 12. Complete Denture Impressions and Jaw

Relationship Records, J. B. Davis and J. C. Eselman, April 17, 18, 19.

P.G. 2. Refresher Course in Principles and Technics of Crowns and Bridges, J. D. Adams, one day a week, April 27, May 4, 11, 18, 25.

P.G. 8. Cephalometry, V. Sassouni and W. M. Krogman, May 22, 23, 24.

P.G. 6. Inlay Restorations, R. E. Sausen, one day a week, June 16, 23, 30.

For further information please contact Dr. Kenneth V. Randolph, Dean, West Virginia School of Dentistry, Morgantown, Va.

* * *

Address inquiries concerning the following course to: Postgraduate Division, Baltimore College of Dental Surgery, Dental School, University of Maryland, Baltimore, Maryland.

Annual Postgraduate Pedodontic Course, May 20-21, 1961 (Fee $35)

Course participants are: Dr. William Kramer, University of Nebraska, School of Dentistry; Dr. Paul Sydow, Framingham, Massachusetts; and the staff of the Department of Pedodontics of the University of Maryland. The course is under the direction of Dr. Douglas J. Sanders.

* * *

Address all communications concerning the following Postgraduate Refresher Courses to: Postgraduate Division, School of Dentistry, Fairleigh Dickinson University, Teaneck, N. J.

Principles of Occlusion in Dentistry—March 27, 28, 29, 30, 1961

Management of the Hospital Dental Patient—May 3, 10, 1961

* * *

Address all communications concerning the following course to: Dr. William R. Mann, Assoc. Director of the W. K. Kellogg Foundation Institute, Graduate and Postgraduate Dentistry, University of Michigan, Ann Arbor, Michigan.

Practice Administration for the Pedodontist, May 1-2, 1961

The course participants are: Dr. James Simmons, president of ASDC, Fort Worth, Texas; Dr. Z. Konikow, president of MSDC, Royal Oak, Michigan; Dr. Ralph Campbell, teacher of postgraduate courses in Practice Administration; and members from the Graduate School of Business Administration.

* * *

Columbia Course on Dentistry in Cerebral Palsy

The Columbia University School of Dental and Oral Surgery announces that a one week course in "Dentistry in Cerebral Palsy" will be conducted by the Division of Pedodontics June 5-9, 1961. This course is open to dentists affiliated with cerebral palsy treatment centers or otherwise interested in dentistry in cerebral palsy and other handicapping conditions. The course will consist of lectures, demonstrations and clinical training. A limited number of applications will be accepted.

Further information and application forms may be obtained by writing to: Chairman, Postgraduate Admissions Committee, School of Dental and Oral Surgery, Columbia University, 630 West 168th Street, New York 32, New York.

* * *

The Children's Hospital of Baltimore, Maryland, is accepting applications for a full-time dental internship to begin July 1, 1961.

The internship is of the rotating variety and will stress dentistry for the handicapped, and the use of general

anesthesia in complete dental service.

The training will be given with the cooperation of the Department of Pediatrics of the Johns Hopkins Hospital, and is being supported by a grant received from the Children's Bureau of the Department of Health, Education and Welfare.

Inquiries should be addressed to Mr. Christian M. Christiansen, Administrator, The Children's Hospital, 3825 Greenspring Ave., Baltimore 11, Md.

Material intended for the Unit News should be sent to Tiny Konikow, 500 S. Washington Ave., Royal Oak, Michigan. Deadline Dates: First Quarter, January 25; Second Quarter, April 25; Third Quarter, July 25; Fourth Quarter, October 25.

The Most Important Dimension*

GEORGE M. HOLLENBACK, D.D.S., M.S.D.

IT should be emphasized that the treatment of carious lesions by restorative means is surgery. The restorative dentist is operating on living tissue and he must be always aware of this fact and handle the tissues with which he deals with proper surgical technic. It is undoubtedly true that in the past operations on individual teeth were not regarded as highly technical surgical procedures but more as a patch job done on a more or less inanimate portion of the body which might be likened somewhat to the ministrations of a manicurist. This attitude which still exists in the public mind is one for which the dental profession itself should assume responsibility. This unfortunate condition can be corrected only by better education of the public on the part of the dental profession.

A well educated dentist need never apologize for his calling. In his ministrations to the public welfare he is largely engaged in the practice of surgical procedures. He is always conscious that he is working on living tissues which are a definite and necessary part of the human mechanism. Being well trained he will respect the amount of knowledge which he possesses, and he will also appreciate that he must utilize this knowledge to the utmost in order to minister properly to those who seek his services. He must not feel subservient or inferior to the internist, the general surgeon, the oculist, the urologist or any of those who practice the numerous specialties of medicine. As a matter of fact in the broader sense, he himself is a medical specialist though he has not been educated in the same institutions as are medical men. By this no implication is intended or even hinted that his education is any less complete than that of the medical practitioner.

Everyone who is engaged in the art and science of healing should be governed by this ideology: That in so far as possible those who seek his ministrations shall be so treated that their bodies will function normally.

Understanding fully the great responsibility he has voluntarily assumed, it becomes encumbent upon him to be observant, thoughtful, studious and to seek further knowledge from all available sources, thus equipping himself to fulfill better his obligation.

Originally the medical practitioner assumed in its entirety the full responsibility for the physical welfare of all those who sought his ministrations. As the science of medicine developed the field of knowledge necessarily broadened to the extent that no one individual could encompass it.

Thus the need for specialization came about. In specialization the responsibility for the health of the patient can be better served if assumed by several individuals, each one having been trained to minister to certain parts of the body or to engage in the treatment of certain specific abnormalities or diseases. As an example, in medicine we have oculists, dermatologists, gastro-enterologists, urologists and surgeons, to name but a few of the medical specialties. At this time

* Reprinted from the *Journal of the Southern California State Dental Association*, February 1961, Vol. XXIX, Number 2.

few, if any, surgeons have the temerity to encompass the entire field. Thus we have orthopedic surgeons, gastric surgeons, urologic surgeons, neurosurgeons, naming only a few of the surgical specialties.

Dentistry occupies a peculiar position in that it is not usually regarded as a specialty of medicine, dental practitioners being educated in separate institutions which are not a part of, nor are they controlled by medicine, yet the responsibilities of the dentist are the same as those of the physician or surgeon. He has voluntarily assumed the obligation of ministering to a certain portion of the human body, the oral cavity and its surrounding tissues.

In practice the dentist is engaged largely in surgical procedures. The majority of abnormalities and diseases which are prevalent in the oral cavity do not lend themselves well to treatment by medical means. The ravages of dental caries and periodontosis can be treated successfully only through surgery. The conservative surgical treatment of the latter consists of thoroughly removing all sub-gingival deposits, polishing the root surfaces and the curettage of periodontal pockets. More radical measures such as gingivectomy and alveolotomy may be resorted to. All of these procedures are of a surgical nature. Likewise, abnormalities presented in the development of the occlusion are treated by the orthodontist. His ministrations are also of a surgical nature. The dentist is also called upon to minister to those who through accident and trauma have the oral structures damaged. Here again the only recourse is by surgical means. The dental practitioner should so proceed that in so far as possible every portion of the oral mechanism shall be returned to its normal appearance and function.

The title of this paper **THE MOST IMPORTANT DIMENSION** points out only one of the many problems that are faced every day by practitioners of dentistry. This problem is the maintenance of the mesio-distal dimension of each tooth in the arch. If through the ravages of caries the mesio-distal diameter of a tooth is lessened, it must be restored to its normal dimension with a material which will maintain that dimension indefinitely. Therefore, the material used in the restoration must be insoluble in the fluids of the mouth. It must have sufficient integrity that it will not succumb to interproximal wear to a greater degree than the enamel of the tooth. It must be sufficiently resistant to withstand the stress of mastication. It is highly desirable that this material be of such a nature that the destruction of a minimal amount of tooth structure is entailed in its use. It should also be pleasing aesthetically. However, this is a matter of secondary importance.

When the physical properties of restorative materials are considered, it is evident that some of the materials ordinarily used will not meet the requirement. The only materials which do meet the requirement are gold and its alloys, amalgam and fused porcelain. The other materials used are cements, and more recently a synthetic plastic usually of a methyl methacralate derivation. These materials are completely lacking in the requirements of a good restorative material except that initially they meet the aesthetic requirement fairly well. The silicate cements possess little physical integrity and will not withstand the stress of mastication. They succumb rapidly to interproximal wear, and last but not least, they are soluble in the oral fluids. The plastic restorative materials possess a very high shrinkage during

polymerization. Their thermal coefficient is exceedingly high. They are very soft and have a high degree of flow and are not resistant to interproximal wear or to the wear of occlusal attrition. It is evident when these facts are considered that these materials are not in any way suited to the requirements of a good restorative material and that they will not under any condition maintain the mesiodistal diameter of a carious tooth. Therefore, in restorations which involve the contact point, they must be given no consideration as they are completely inadequate to function properly.

With the elimination of plastic and cements as suitable materials for interproximal restorations the list of materials has dwindled to three—fused porcelain, amalgam and gold. Gold may be used either as a cast inlay or in its cohesive form, in this instance being built directly into the prepared cavity. Fused porcelain under certain very restricted conditions may be used quite successfully. However, it has certain definite deficiencies. The technic of its use is exceedingly involved and difficult. Only a comparatively few operators have mastered this art. Also its use necessitates the sacrifice of considerable tooth structure. Therefore, it is contraindicted in the small proximal cavities of the anterior teeth which occur so frequently in young patients. Young patients should have periodic x-ray examinations using bitewing films. When this is done carious lesions will be found in their incipiency. It is unthinkable that in young people of adolescent years that anterior teeth should be subjected to the destruction which would come about if porcelain inlays are to be used, especially in view of the fact that an ideal material exists which may be very successfully used in these incipient lesions.

Amalgam, while a very satisfactory material for the posterior teeth, is contraindicated for aesthetic reasons in all locations anterior to the distal of the first bicuspid.

The limitations of two of these materials having been pointed out, consideration will now be given to the third, that is, gold. Needless to say, cast restorations should not be used in the very small cavities that occur in the anterior teeth during the adolescent years. Gold foil is the ideal material under these conditions. With modern instruments and technics proximal cavities may be prepared in the anterior teeth in such a manner that the restoration will be almost invisible. Modern condensing instruments permit the placing of Class III restorations entirely from the lingual approach. When aesthetics become a paramount issue the labial margin of the cavity can be prepared just slightly labially to the contact point. Preparations of this kind are open to one criticism—that the theory of extension for prevention is not completely carried out. However, this is a compromise that usually works out very well.

In incipient caries in anterior teeth it is a sound procedure to use gold foil by the lingual approach. In spite of the fact that the theory of extension for prevention is not completely carried out, a great many of these restorations were observed over a long period of time with no evidence of failure.

A young and very prominent actress in 1928 was found to have several incipient carious lesions in the four anterior teeth. This patient was very intelligent. She had a good knowledge of dental procedure as her brother was a dental practitioner. When it was suggested that these lesions be filled with gold foil from the lingual approach, keeping them invisible, she was greatly

impressed and consented to have them placed. Twenty-five years later, all of these restorations were in place and showed no sign of failure. This is particularly remarkable because at the time these restorations were placed the modern types of condensing instruments were not available. For condensation the hand mallet and a reverse action spring mallet were used. Thus it will be appreciated that gold foil and gold foil alone has properties whereby such restorations can be successfully made. Not only were these restorations aesthetic and durable but also they maintained that all important dimension, the mesio-distal diameter of the teeth. This procedure was called the invisible gold foil restoration.

Dr. Harry A. True, Professor of Operative Dentistry of the College of Physicians and Surgeons of San Francisco developed another technic which he called the inconspicuous gold foil restoration. In this restoration the tenets of extension for prevention are carried out. Yet these cavities are so uniquely prepared that the restorations are inconspicuous and would not be noticed by a casual observer. Needless to say, however, this procedure will not meet the exacting requirements of professional people but for all others it should be adequate. Here again proper respect for the mesio-distal diameter of the tooth is displayed, the contact point being restored by gold foil which adequately withstands interproximal abrasion.

Unfortunately, some biased individuals are demanding that gold foil be dropped from the list of restorative materials. This is advocated on the basis that gold foil necessitates a great sacrifice of tooth structure and that the dental pulp is always damaged by the malleting which occurs when this material is used. The comment seems apropos that individuals who assume this attitude are not conversant with the situation.

Clinically gold foil restorations in the anterior teeth have been highly successful and the writer can say this: Throughout his entire professional career covering a period of 48 years, he used gold foil. Periodic x-ray examinations were started in 1916. Pulp pathology was conspicuous by its almost complete absence.

It has long been appreciated that in proximal cavities the contact point must be properly restored. If this is not done derangements of a serious nature occur. This is particularly true in the case of the anterior teeth. The structure of the dental arch is usually of such a nature that when the mesio-distal diameter of the anterior teeth is not maintained, the anterior portion of the arch will collapse. The teeth remain in close contact regardless of the fact that their contours may have been largely destroyed and with the continuing loss of the mesio-distal dimension this phenomenon will continue. This unfortunate consequence is serious. The interdental papilla becomes pinched and suffers severely probably from strangulation of its circulation and atrophy of the tissues. In time the papilla will be completely destroyed. During this process infection gains entrance, thus a serious pathologic lesion ensues. With the loss of the interdental papilla, deterioration of the alveolar process will occur, thus these lesions become very destructive. Separation of the teeth is difficult or impossible as the dental arch has accommodated itself to these abnormal positions of the anterior teeth, thus a condition is established which cannot be successfully remedied. The pathologic process continues and in course of time the teeth are lost from the effects of periodontal disease. What a tragedy this is and how unnecessary! If

proper attention is given to carious lesions in their incipiency and well made gold foil restorations placed, this condition will never ensue.

In closing, the writer wishes to make this statement: That in his opinion, those who are condemning the use of gold foil are not well informed as to the true state of affairs; to put it bluntly it might be well stated that they are ignorant. We have at our command a perfect remedy for this situation and one which is available and can be used by every competent dentist.

5255 Encino Avenue
Encino, California

LIBRARY S-O-S

The Central Office has frequent calls for back issues of the JOURNAL OF DENTISTRY FOR CHILDREN from libraries for binding into complete volumes for reference purposes, and from men studying for advanced degrees. Most issues before 1950 and many of the 1950 to 1960 issues (especially 1st Quarter) are completely out of stock. If any members have JOURNALS which they are willing to contribute or sell, please inform the Executive Secretary which copies are available for these worthwhile purposes.

DR. C. F. TUMA
Executive Secretary
7701 Fitzwater Road
Cleveland 41, Ohio

Instructions to Parents For Brushing the Child's Teeth

PAUL STARKEY, D.D.S.*

THE purpose of this paper is to describe a technique which a dentist may teach parents of very young children to use in brushing the child's teeth and to make certain recommendations related to the act.

There is general agreement among dental scientists that it is beneficial for the teeth to be brushed routinely. Although there have been no studies conducted that have conclusively proven toothbrushing to be directly effective in preventing dental caries, the act can be recommended for its esthetic value, its beneficial effects on the gingival tissues and its possible effect in reducing caries.

According to Baer,[1] although periodontal disease is not common in children in the primary dentition state, when it does occur it is almost invariably a marginal gingivitis and is the result of poor oral hygiene, calculus or caries. This, it would seem, could be prevented by a routine toothbrushing habit.

McDonald[2] conducted a dentifrice study involving 44 children and observed "a significant reduction in the positive reactions to the Snyder Test when the children had oral hygiene instruction and followed supervised toothbrushing routine immediately following each meal." He also reported that a toothbrushing routine was beneficial in the correction of gingivitis, particularly the type due to poor oral hygiene.

Hine[3] states that two requirements must be met for toothbrushing to be effective in reducing caries; one, it must be performed immediately after meals, and two, that it must be done thoroughly. He cites the independent studies of Stephan[4] and Fosdick[5] demonstrating that acid production occurs almost immediately after food has reached the bacterial plaque.

A number of investigators[2, 6, 7] have demonstrated that toothbrushing can reduce the number of bacteria in the mouth, but just what effect this rather temporary reduction has on the caries activity has not been determined.

Kimmelman and Tassman[8] reported in a study of toothbrushing habits of children that brushing performances of children under age seven were generally briefer, more haphazard and more erratic than in children above the age of seven. In this study, 23 of the 31 children age five and under, brushed less than 20 seconds. Eleven of the 31 did not "wield" the brush.

Dudding and Muhler[9] found in a study of 374 children who were classified as having "good" or "poor" oral hygiene, that 61 per cent of those who were classified as "good" learned such practices from their dentist. In contrast, only 33 per cent who were classified "poor" provided the same answer. It would seem, therefore, that the dentist plays a very important role in the establishment of good oral hygiene practices.

The Toothbrush

In a study of the relative abrasiveness of natural and synthetic bristles on ce-

* Department of Pedodontics, Indiana University School of Dentistry, Indianapolis 2, Indiana.

mentum and dentin, Manly and Brudevold[10] found that the toothbrush itself, whether it be synthetic or natural bristle, has little or no abrasive effect on enamel and dentin. Abrasion of tooth structure is independent of the stiffness or composition of the bristle, but depends almost entirely on the properties of the dentifrice used in conjunction with the toothbrush. For example, a medium abrasive tooth powder will increase the abrasive action of any toothbrush by several hundred per cent.

In a study of the effects of diameter of nylon bristles on enamel surface, conducted by Swartz and Phillips,[11] it was found that there was no significant difference in the final luster attained with various diameters of nylon bristle in toothbrushes. In another study, these same investigators[12] found that when immersed in water, nylon bristles tended to retain their stiffness much better than the natural bristles and that they also regained their original values more rapidly.

However, in a study conducted by Kimmelman and Tassman[8] it was found in tests of children's synthetic toothbrushes, by means of controlled strokes on mounted teeth, and in the mouths of children, that scrubbing efficiency relates to brush design. They found that "medium" brushes were more efficient than "hard" or "soft" brushes in removing stains they had applied to the teeth of children. At the present time, the author recommends a children's brush fabricated of synthetic bristles of "medium" stiffness.

The Dentifrice

There are two purposes of a dentifrice: one, to act as a caries preventive agent, and two, to assist the toothbrush in freeing the accessible surfaces of the teeth of newly deposited debris and stain.

The usefulness of stannous fluoride dentifrice as a caries preventive agent has been recognized by the Council on Dental Therapeutics of the American Dental Association.[13] This dentifrice has been shown to be an effective anti-cariogenic agent by several investigators.[14, 15, 16, 17, 18]

Muhler[14] conducted a dentifrice study involving 514 Bloomington, Indiana children. At the end of one year, subjects in the group who were using stannous fluoride dentifrice in unsupervised brushing developed 49 per cent fewer DMFS than those in the control group using a dentifrice without the stannous fluoride and also practicing unsupervised brushing.

Jordan and Peterson[16] reported a supervised dentifrice study involving 628 children. Children from one school were given stannous fluoride dentifrice and those in another school (the control group) were given a dentifrice which did not contain the stannous fluoride. The children were shown proper toothbrushing technique and encouraged to brush their teeth after each meal at home. Five days a week they brushed their teeth under supervision at school after the noon meal. At the end of one year the subjects in the stannous fluoride group had developed 34 per cent fewer new DMFS than the control group. At the end of two years[17] the subjects in the stannous fluoride group had developed 21 per cent fewer new DMFS than the control group. These results corroborate the original work of Muhler and associates.

In view of these studies and others, the author recommends a stannous fluoride dentifrice (Crest).

The Time of Brushing

As was discussed earlier in this paper, brushing the teeth immediately after eating will provide the most caries preventive benefits. Therefore, it is recommended that the teeth be brushed immediately after each meal, and also immediately following the taking of food at any other time, if at all practical.

Wielding the Brush

In the previously mentioned study by Kimmelman and Tassman[8] they found

FIGURE 1. Incorrect approach showing no support for the child's head, with left hand being used to stabilize mandible, and therefore, not free to retract lips.

that two brushing zones were most commonly favored by all of the participants of their study. The favored surfaces were the labial and the occlusal surfaces of lower molars. The parent, by brushing the child's teeth, will be able to make certain that all surfaces receive adequate

FIGURE 2. Correct approach to brushing the child's teeth. Note that head is cradled between body and arm, the left hand is retracting lips, the right free to wield the brush.

brushing. In this same study, the authors stated that the "scrubbing action best dislodges debris on the tooth surfaces, the major anti-caries role of the brush and, primary tooth and arch anatomy, particularly the presence of cervical ridges, permits of more thorough cleaning by horizontal scrubbing strokes with relative safety to the gingivae." Therefore, the scrubbing action is recommended for this younger pre-school group of children who are not yet capable of performing an efficient toothbrushing act themselves.

The Technique

The dentist, the dental hygienist or the dental assistant should demonstrate to the parent, in the child's mouth, the technique to be employed. It is advisable to have a new brush to offer the patient

and to use it in the demonstration. At this time, the type of brush and toothpaste to be used can be recommended.

The most commonly observed incorrect approach to brushing a child's teeth is illustrated (Fig. 1). It should be noted that there is no support for the child's head and, therefore, it is virtually impossible to stabilize the head for effective brushing. The left hand is being used in an attempt to stabilize the mandible, and, therefore, cannot be used to retract the lips for visibility and access.

Fig. 2 illustrates the proper approach. The child stands in front and leans her head back against the parent. The parent uses the left lower arm to "cradle" the head for support and stabilization, while the fingers of the left hand are used to retract the lip, leaving the right hand free to do the brushing. In this position, the labial and lingual surfaces of the lower anteriors can be brushed.

Fig. 3 and 4 illustrate the approach to brushing the buccal and lingual surfaces of the lower posterior teeth. While the child leans back against her, the parent wields the brush with the right hand and retracts the cheeks with the left.

Fig. 5 and 6 illustrate the position used in brushing the upper teeth. The child's head is tilted sharply backward, thereby offering the parent a full view of the upper arch. The forefinger of the parent's left hand is used to retract the lips or cheek, while the right hand is free to brush the buccal and occlusal surface of the upper molars. The lingual surfaces can also be brushed in this position as well as the labial and lingual surfaces of the upper anteriors.

Summary

A technique for brushing the teeth of a very young child has been described which may be taught to parents. A tooth-

FIGURES 3 & 4. The proper approach for brushing the lingual, buccal and occlusal surfaces of lower posterior teeth.

FIGURES 5 & 6. The proper approach for brushing the maxillary teeth.

brush of "medium" stiffness has been recommended as well as a stannous fluoride containing dentifrice. It is suggested that the teeth be brushed after each time the child eats, and that the "scrubbing" method be used. It is felt that if a dentist teaches the parent to brush the child's teeth, the child will benefit from the esthetic effect, from the stimulating effect on the gingival tissues and from the possible reduction in dental caries activity, during this period when he himself is not yet able to brush effectively. It is further suggested that this is an excellent way to instill in the child's mind the importance of caring for his teeth and that when he is old enough, he will continue the habit himself.

REFERENCES

1. BAER, PAUL N.: Periodontal disease in children and adolescents: a clinical study. J.A.D.A., 55:629-634, Nov. 1957.
2. MCDONALD, RALPH E.: Effectiveness of a Penicillin-containing dentifrice in the control of gingivitis and oral acid-producing microorganisms. J. Den. Children, 20:47-51, 2nd quart., 1953.
3. HINE, MAYNARD K.: Prophylaxis, toothbrushing and home care of the mouth as caries control measures. J. D. Res., 27:223-229, Apr. 1948.
4. STEPHAN, R. M.: Changes in hydrogen-ion concentration on tooth surfaces and in carious lesions. J.A.D.A., 27:718-723, May 1940.
5. FOSDICK, L. S.: Etiology and control of dental caries. J.A.D.A., 29:2132-2139, Dec. 1942.
6. FLORESTANO, H. J., ELLIOTT, N. A. and FABER, J. E.: The effect of citrus juices and various mouth prophylaxis on the oral flora and saliva. J. Bact., 41:605-625, 1941.
7. CROWLEY, MARY C. and RICKERT, U. G.: A method for estimating the bacterial content of the mouth by direct count. J. Bact., 30:395-400, 1935.
8. KIMMELMAN, B. and TASSMAN, G. C.: Research in designs of children's toothbrushes. J. Den. Children, 27:60-64, 1st quart., 1960.
9. DUDDING, NANCY J. and MUHLER, J. C.: What motivates children to practice good oral hygiene? J. Periodont., 31:141-142, Apr. 1960.
10. MANLY, R. S. and BRUDEVOLD, FINN: Relative abrasiveness of natural and synthetic toothbrush bristles on cementum and dentin, J.A.D.A., 55:779-780, Dec. 1957.
11. SWARTZ, MARJORIE L. and PHILLIPS, RALPH W.: Effects of diameter of nylon bristles on enamel surface, J.A.D.A., 47:20-26, July 1953.
12. SWARTZ, MARJORIE L. and PHILLIPS, RALPH W.: Effect of certain factors upon toothbrush bristle stiffness. J. Periodont., 27:96-101, Apr. 1956.

13. Reports of councils and bureaus. Evaluation of Crest toothpaste. J.A.D.A., 61:272, Aug. 1960.
14. MUHLER, J. C. and others: The effect of a stannous fluoride-containing dentifrice on caries reduction in children. J. D. Res., 33:606-612, Oct. 1954.
15. MUHLER, J. C. and others: Effect of a stannous fluoride-containing dentifrice on caries reduction in children. II. Caries experience after one year. J.A.D.A., 50:163-166, Feb. 1955.
16. PETERSON, J. K. and JORDAN, W. A.: Caries-inhibiting value of a dentifrice containing stannous fluoride: first year report of a supervised toothbrushing study. J.A.D.A., 54:589-594, May 1957.
17. JORDAN, W. A. and PETERSON, J. K.: Caries-inhibiting value of a dentifrice containing stannous fluoride: final report of a two year study. J.A.D.A., 58:42-44, Jan. 1959.
18. PEFFLEY, GEORGE and MUHLER, J. C.: Effect of a commercial stannous fluoride dentifrice with controlled brushing on caries in children. J. D. Res., 38:670-671, July-Aug. 1959 (Abstract).

NOTICE

Unless your 1961 dues are paid *and are received by our national Executive Secretary* before April 20, 1961, you will not be listed in our new directory which will be published in June.

NOTICE

The Secretaries of the American Society of Dentistry for Children and the American Board of Pedodontics receive frequent requests for a listing of schools and clinics offering postgraduate, graduate, internship and residency training in pedodontics.

The next Board examination will be held October 30-November 2, 1961 at the University of Michigan, School of Dentistry, Ann Arbor, Michigan.

To provide the members of the Society with current information regarding courses of study which will meet the educational requirements of the American Board of Pedodontics a listing of schools and clinics offering programs in pedodontics is published, with the permission of the Council on Dental Education of the American Dental Association. Candidates for examination by the American Board of Pedodontics, as well as for the other specialty boards, must meet the following educational requirement: two academic years of graduate or postgraduate training. Internship and residency training in an A.D.A. approved hospital program is accepted by the Board providing the program extends over a two calendar year period.

GRADUATE PROGRAMS IN PEDODONTICS*

School Offering Program	*Degree Granted*	*Date Program Begins*	*Faculty Member Responsible*
Alabama	M.S.	July	Dr. Sidney B. Finn
Illinois	M.S.	September	Dr. Maury Massler
Northwestern	M.S.D. M.S. Ph.D.	September	Dr. Norman Olsen
Indiana	M.S.D. M.S.	September	Dr. Ralph E. McDonald
Tufts	M.S. M.S.D.	October	Dr. Frederic Shiere
Michigan	M.S.	September	Dr. Kenneth A. Easlick
Minnesota	M.S.D.	October	Dr. Harold C. Wittich
Kansas City	M.S.D.	July	Dr. Wm. J. Carter
Washington St. Louis	M.S.	September	Dr. John E. Gilster
Nebraska	M.S.D.	September	Dr. Ralph L. Ireland
Eastman Dispensary	M.S.	September	Dr. Roland R. Hawes
North Carolina	M.S.	June	Dr. Roy L. Lindahl
Oregon	M.S.D.	October	Dr. D. Porter
Pittsburgh	M.S.	September	Dr. C. W. Hagan
Tennessee	M.S.	Quarterly	Dr. James P. McKnight
Medical College of Virginia	M.S.	September	Dr. C. J. Vincent
University of Washington Seattle	M.S.	September	Dr. David B. Law
Marquette	M.S.	September	Dr. R. V. Brown

* Council on Dental Education, American Dental Association Report on Graduate and Postgraduate Program in Dentistry, 1959-1960.

HOSPITAL INTERNSHIP AND RESIDENCY PROGRAMS IN PEDODONTICS*

Name and Location of Hospital	*Submit Application by*	*Stipend*
Children's Hospital of the District of Columbia 2125-13th Street, N. W. Washington, D. C.	———	2,700
Children's Memorial Hospital 707 Fullerton Avenue Chicago, ILLINOIS	April	900
James Whitcomb Riley Hospital for Children 1100 W. Michigan Street Indianapolis, INDIANA	January	2,400
The Children's Hospital Medical Center 300 Longwood Avenue Boston, MASSACHUSETTS	January	900
Mercy Children's Hospital 1710 Independence Avenue Kansas City 6, MISSOURI	March	3,600
Children's Hospital of Buffalo 219 Bryant Street Buffalo, NEW YORK	March	1,000-1,500
Children's Hospital of Philadelphia 1740 Bainbridge Street Philadelphia 46, PENNSYLVANIA	December	1,200
St. Christopher's Hospital for Children 2600 North Lawrence Street Philadelphia, PENNSYLVANIA	January	1,200
Children's Hospital of Pittsburgh DeSoto Street Pittsburgh 13, PENNSYLVANIA	December	600
Children's Medical Center 2306 Welborn Dallas 19, TEXAS	———	1,500
Milwaukee Children's Hospital 721 North 17th Street Milwaukee, WISCONSIN	March	3,240-3,540

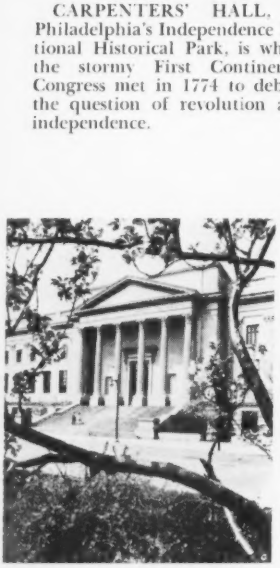
* Council on Dental Education, American Dental Association Hospital Dental Internships and Residencies Approved by the Council on Dental Education (revised to April 1, 1960).

CARPENTERS' HALL, in Philadelphia's Independence National Historical Park, is where the stormy First Continental Congress met in 1774 to debate the question of revolution and independence.

INDEPENDENCE HALL, the most historic place in the nation. Here the Declaration of Independence was signed and first proclaimed and here the Constitution of the United States was debated and adopted.

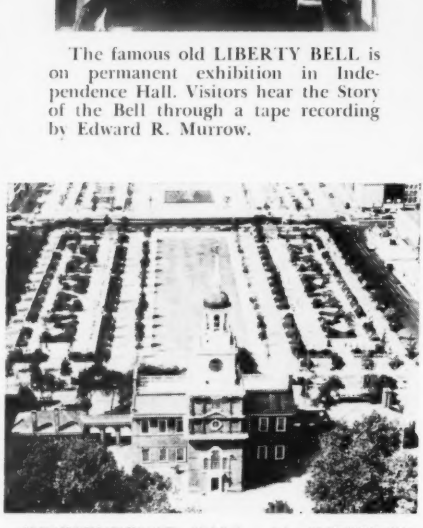
The BETSY ROSS HOUSE is the "Birthplace of Old Glory." Here the little Colonial seamstress made the First American Flag.

The famous old LIBERTY BELL is on permanent exhibition in Independence Hall. Visitors hear the Story of the Bell through a tape recording by Edward R. Murrow.



The FRANKLIN INSTITUTE on the Benjamin Franklin Parkway is a wonderland of science, fascinating to children and adults alike. The building also houses the Fels Planetarium where demonstrations are given daily, except Monday.

WASHINGTON's HEADQUARTERS in Valley Forge State Park. It was here that General Washington's Continental Army camped during the bitter winter of 1777-78. Valley Forge is about 20 miles from midtown Philadelphia.



INDEPENDENCE HALL with INDEPENDENCE MALL in the background. The beautifully-landscaped Mall provides a perfect setting for the Nation's most famous historic site.

AMERICAN SOCIETY OF DENTISTRY FOR CHILDREN

Convention Coordinator and General Co-Chairman
MANUEL M. ALBUM, D.D.S.

General Co-Chairman
RAYMOND WERTHER, D.D.S.
255 South 17th Street
Philadelphia, Pa.

Table Clinics Chairmen
ELWOOD M. SPELLMAN, D.D.S.
225 West Miner Street
West Chester, Pa.
MORTON COHEN, D.D.S.
1555 W. Main Street
Norristown, Pa.

Equipment Committee Chairmen
BEN GROSSMAN, D.D.S.
9987 Verree Road
Philadelphia, Pa.
C. MARLIN SHOPE, D.D.S.
225 North Union Street
Middletown, Pa.

Registration Committee Chairmen
ROBERT MOORE, D.D.S.
2519 Huntingdon Pike
Huntingdon Valley, Pa.
WILLIAM H. BINNS, JR., D.D.S.
130 Greenwood Avenue
Wyncote, Pa.
ROBERT A. KOLB, JR., D.D.S.
Oxford Avenue and Penn Street
Philadelphia, Pa.

Public Relations Chairmen
DAVID A. SORICELLI, D.D.S.
Department of Health
City Hall Annex
Philadelphia, Pa.
JAMES L. DANNENBERG, D.D.S.
1913 Walnut Street
Philadelphia, Pa.

Editorial Staff Chairmen
ROBERT I. KAPLAN, D.D.S.
3038 Federal Street
Camden, New Jersey
BENEDICT B. KIMMELMAN, D.D.S.
1711 Pine Street
Philadelphia, Pa.

Social Chairman
MARTIN MOSCOW, D.D.S.
41 W. Lancaster Avenue
Ardmore, Pa.

Scientific Luncheon Chairman
MORRIS KELNER, D.D.S.
1930 Chestnut Street
Philadelphia, Pa.

Women's Activities Chairmen
MRS. MANUEL M. ALBUM
8004 Ivy Lane
Elkins Park, Pa.
MRS. RAYMOND WERTHER
1317 Morris Road
Wynnewood, Pa.

Hospitality Committee Chairman
MISS MAE SARSFIELD, R.D.H.
255 South 17th Street
Philadelphia, Pa.

Secretary-Treasurer
ROBERT F. SPANGLER, D.D.S.
955 S. George Street
York, Pa.

State Liaison Committee Chairman
JEROLD W. MILLER, D.D.S.
1930 Chestnut Street
Philadelphia, Pa.

Advisory Committee
HAROLD K. ADDELSTON, D.D.S.
ABRAM COHEN, D.D.S.
THOMAS P. FOX, D.D.S.
M. JOEL FREEDMAN, D.D.S.
SIDNEY I. KOHN, D.D.S.
A. H. LUBOWITZ, D.D.S.
CHARLES PATTON, D.D.S.
ERNEST F. RITSERT, D.D.S.
G. C. TASSMAN, D.D.S.
PAUL WEBER, D.D.S.

1961 Annual Meeting

PHILADELPHIA — OCTOBER 13-15, 1961

Address Reply to
Medical Arts Building
Hillside Avenue and York Road
Jenkintown, Pennsylvania

March 15, 1961

Dear Doctor:

Do you remember the conventions you enjoyed the most? Invariably they were the ones where you had planned ahead; the scientific sessions, the social gatherings, the friends you expected to meet.

The 1961 A.S.D.C. meeting in Philadelphia will be one of the most memorable affairs of your professional career. Discuss the program with your friends, choose the sessions which interest you and mark down the social calendar as a must.

Send in your preregistration form NOW to assure your place for the most enlightening three days you ever will be offered.

Sincerely yours,

MANUEL M. ALBUM, D.D.S.
RAYMOND WERTHER, D.D.S.
General Co-Chairmen

The Dental Management of Epileptic Children

JERRY J. ADELSON, D.D.S., Ed.D.*

EPILEPSY is a chronic paroxysmal disorder of cerebral function, characterized by recurrent attacks involving changes in the state of consciousness, sudden in onset and of brief duration. The attacks often are accompanied by a convulsion in which the patient falls involuntarily.

Epilepsy is of two etiologic types: idiopathic and symptomatic. In idiopathic epilepsy, no organic lesion of the brain or physiologic disturbance can be shown to cause the seizures. About 75 per cent of all cases are of this latter type. In symptomatic epilepsy, an organic lesion in the brain, or some physiologic disturbance can be demonstrated as the underlying basis. The organic lesions may be tumors, abscesses, inflammatory or degenerative processes, or scar tissue formation following traumatic or vascular injury. Birth trauma to the head is of particular importance. The physiologic disturbances that may lead to, or be accompanied by, seizures may result from various intoxicating agents (noxious, gases, alcohol), overdosage of insulin, adenoma of the pancreas (hypoglycemia), hypofunction of the parathyroid glands (tetany), alkalosis, intracranial hemorrhage (whooping cough), water retention (cerebral edema), convulsant drugs, and numerous other sources.

There is no evidence that epilepsy itself is hereditary, but disturbances (dysrhythmias) of the electrical pulsations of the brain, which are closely associated with epileptic seizures, are hereditary and have been closely associated with epileptic seizures, and have been demonstrated in an overwhelming proportion of the parents of epileptics. Such dysrhythmias probably constitutes an inherited predisposition to epilepsy.

Three types of epilepsy are recognized: grand mal, petit mal, and psychic equivalent or psychomotor attacks. Each type has a specific pattern.

1. *Grand mal* (including Jacksonian and focal seizures); in about 50 per cent of cases, the seizure of grand mal begins with a warning (aura) that may consist of strange visceral sensations, headache, visual disturbances, vague premonitions, or bizarre repetitive thoughts and phrases. The patient falls to the ground in coma, unable to make any attempt to save himself or to avoid obstacles and often receives cuts, bruises and fractures.

Jacksonian seizures are manifested by clonic convulsive movements or by paresthesias which begin in one hand or foot and then spread unilaterally upward, following the same pattern in each attack.

2. *Petit mal* attacks are most common in childhood and are manifested by transient clouding of consciousness lasting from one to thirty seconds, with or without minor movements of the head, eyes, and extremities, or loss of muscular tone.

3. *Psychic equivalents or psychomotor attacks.* Under this heading are included

* Assistant Clinical Professor, Columbia University College of Oral and Dental Surgery. Attending Anesthesiologist, Jewish Memorial Hospital. Chief, Dental Service for the Apprehensive, Difficult, and Handicapped, Grand Central Hospital.

a group of epileptiform attacks which differ from the topical grand mal or petit mal seizures. There are disturbances of consciousness without convulsive movements. The patient does not fall to the ground unconscious.

Many patients suffer from a mixture of seizures, for example: grand mal and petit mal, with the symptoms of each alternating.

Drugs

The most acceptable drugs now in use for the treatment of epileptic seizures are the barbiturates, hydantoins, oxazolidinediones and, less frequently, the acetylureas and bromides. The barbiturates are usually tried first because of their high therapeutic index and relatively low toxicity. Many of the children are maintained on a daily drug regimen.

Behavior Changes

The personality and behavioral changes in the epileptic child are not specific. They are commonly seen in children with any subacute or chronic disease. Nevertheless, in the epileptic child they probably represent some alteration in cerebral functioning and should be regarded as part of the disease. Personality disorders are present in about half of the children with epilepsy; being severe in approximately 10 per cent. The nature of the disturbance is not specific. The behavior difficulties associated with epilepsy are divided into two general groups: first, those which are direct and primary expressions of disordered cerebral function. Since such symptoms arise, presumably, from the same alteration in brain function that produced the convulsions, certain similarities in symptoms are expressions of the patient's own reaction to his illness. Such reactions will depend upon the child's personality and by the way his illness is regarded by those around him. Since these factors vary from patient to patient, the secondary symptoms will also vary in different individuals. The general behavior primarily characteristic of the epileptic child consists of a cluster of traits. No one or two of these are characteristic, but the presence of several is a general pattern.

Their traits are:

1. Erratic variability in mood or behavior.
2. Hypermotility.
3. Irritability.
4. Short and isolated attention span.

Hypermotility or over-activity and the distractibility or short attention span are similar to these features as seen in other children with organic brain disease. They tend to decrease as the child matures. Irritability is a frequent symptom of many sorts of emotional maladjustment, but is often developed to a higher degree in the epileptic child. Its occurrence without any relationship to circumstances in the child's environment sometimes makes it difficult to understand. However, the idea that there is a specific epileptic personality has been quite generally discarded.

Apparently, there is a larger amount of mental retardation in children with epilepsy than in those not afflicted. This is probably due to a number of factors; cerebral damage, secondary damage caused by convulsions, depression of mental activity by the sedative drug therapy and isolated environment.

Dental Management

The management of the epileptic child, as can be seen by the discussion of the behavior problems and personality, will frequently present difficulties in the

dental office. Since some of the children are restless, distractible, demanding, and disobedient, the establishment of rapport proves quite difficult in these cases.

It should be remembered that in many cases these traits are involuntary and represent the central nervous system damage and, therefore, will not respond to usual methods of child management. Many of the difficulties arising from these behaviorisms may be avoided by the use of a structured environment. This entails drawing of the blinds, no interruptions during treatment and peaceful and quite atmosphere. This removal of distracting stimuli will minimize most of the problems involved.

When this type of patient is encountered and has an accompanying condition of severe rampant caries, it is advised that a single session of complete dental treatment, with the aid of general anesthesia, be utilized.

Drug Therapy

Consultation with the family physician and discussion of the problem may lead to the efficacy of increasing the dosage of the sedative therapy on those days of the dental visit. The increased drowsiness and tranquility will be of aid in decreasing the hyperirritability and hyperactivity of the child and therefore help in the establishment of the necessary rapport. The increased sedation will not serve as a substitute for a training program, but should be used as an aid to gain the child's attention and cooperation in the initial training period. In addition, knowing the drug and dosage being used will aid the practitioner in eliminating suspected causes of periodontal disease, and also provide him with knowledge for the use of additional medications used in management difficulties.

The dentist should be prepared for a child having a petit mal or a grand mal seizure in the office, since seizures are more frequent and severe during periods when emotional factors are operating.

Petit Mal

Petit mal attacks last rarely more than half a minute to a minute. It may be that the child will pause in a conversation and not reply to questions, or present only a vacant look, a fixity of gaze, dilated pupils or momentary pallor of face. In more severe cases, the child's head may sag for a minute and urine may be passed involuntarily. There are no convulsions associated with petit mal attacks.

Grand Mal

Grand mal attacks last about four minutes. About half of the cases are preceded by an aura, either sensory, motor, psychical, or somatic. Frequently, loss of consciousness succeeds the aura so rapidly that the patient does not have an opportunity to place himself out of danger. Convulsions occur at almost the same time as the loss of consciousness. The dentist should immediately lower the chair, place a tongue depressor bound with adhesive tape between the teeth and gently restrain the convulsive patient.

Fractures of Teeth

Fractures of teeth are found more commonly in epileptic children than in normal children, as would be expected. Frequently, during the convulsions, the tongue is bitten and may present a scarred appearance. If the frequency of the attacks is often, the teeth will have the worn appearance of bruxism. No relation between the systemic condition

and the incidence of caries in the epileptic child has been demonstrated.

Gingival Manifestations of Drug Therapy

Those individuals dealing with patients subject to convulsive seizures are well acquainted with the fact that administration of sodium diphenyl hydantoinate (dilantin sodium) may result in a typical enlargement of the gingiva. The complications arising from this gingival enlargement not only concern the neurologist, but the dental practitioner as well. It has been found that approximately 40-60 per cent of patients on dilantin therapy develop this marked gingival enlargement. This hypertrophic gingiva, with resultant collections of debris will result in widespread buccal and labial cavities in many instances.

The basic lesion is a painless hyperplasia of the gingiva occurring labially, interproximally, and buccolingually around the necks of the teeth. It is firm, pale pink and resilient, usually mulberry shaped, and shows no tendency toward spontaneous bleeding. The condition is usually chronic, variable in degree of severity, and without any correlation between the dose of dilantin and degree of enlargement.

The enlarged tissue which occurs in clean mouths is smooth and firm, while more inflammation and bleeding is noted in those mouths with poor oral hygiene. This enlarged tissue reoccurs even after surgical excision, but may be controlled within limits by a rigorous home dental prophylaxis and perio- home care program of gingival massage coupled with thorough dental prophylaxis and periodontal treatment. Extreme thoroughness in the clinical oral examination is mandatory, since buccal or labial cavities may be completely covered by the overgrowth of gingival tissue.

Histological Findings

Histological examinations of biopsy specimens of the tissue show hyperplasia of the epithelium and fibrillar connective tissue. Diffuse infiltrations, predominantly of plasma cells, are found in the connective tissue. Plasma cells are generally considered to produce antibodies. The possibility arises, therefore, that the gingival enlargement may represent some type of allergic reaction. Other findings seem to lend additional support to the allergic basis for dilantin gingival enlargement. Some of the side effects accompanying the use of the drug are of an allergic nature, i.e., dermatitis, purpura and agranulocytosis. Hydantoin derivatives are known to be of a sensitizing nature. The basis for the gingival enlargement, however, remains obscure. While these studies indicate the possibility of an allergic reaction, the reason for the limitation of the enlargement to the gingiva is still unexplained.

At the present time, therapy consists of good oral hygiene which stress toothbrushing and gingival massage, removal of all local irritants, and surgery in severe cases. In most cases, vigorous and rigid methods of home gingival massage will retard the recurrence of the gingival enlargement.

30 W. 59th St.
New York City 19

BIBLIOGRAPHY

ABBOT, J. A., AND SCHWAB, R. S.: The Normal Electroencephalogram in Epilepsy, New Eng., Jr. Med. 238:457, 1948.

ADELSON, J. J.: Dental Treatment of the Problem Patient. Jr. Dent. Med., Jan., 1951.
Dental Care and Management of the Retarded Child, Vol. 61, No. 2, 1956.

ARING, C. D., LEDERER, M. D., AND ROSENBAUM, M.:

Role of Emotion in Causation of Epilepsy. Baltimore; Williams and Wilkins, 1947.

BRADLEY, C.: Behavior Disturbances in Epileptic Children, J.A.M.A. 146:436, 1951.

BRIDGE, E. M.: Epilepsy and Convulsive Disorders in Children, New York; McGraw-Hill Book Co., 1949.

DEUTSCH, L. AND WIENER, L. L.: Children With Epilepsy; Emotional Problems and Treatment. Am. Journ. Orthopsychiat. 18:65, 1948.

Epilepsy: Proceedings of the Association for Research in Nervous and Mental Diseases. Baltimore: Williams and Wilkins Co., 1947.

GIBBS, F. A., AND GIBBS, E. L.: An Atlas of Electroencephalography. Vol. II. Cambridge, Mass.; Addison-Wesley Press, 1952.

PENFIELD, W. AND JASPER, H.: Epilepsy and the Functional Anatomy of the Human Brain. Boston; Little, Brown and Co., 1954.

PREPARATION OF MANUSCRIPTS FOR THE JOURNAL OF DENTISTRY FOR CHILDREN

Exclusive Publication: Articles are accepted for publication on condition that they are contributed solely to this Journal. Publication elsewhere may be subsequently authorized at the discretion of the Editor.

Correspondence: Address all correspondence relating to publication of scientific papers to the Editor.

Manuscript: Type double spaced, on white paper, 8½ by 11, with one-inch margins at the top, bottom, and right, and 1½ inches on the left. Submit the original. Call drugs by their generic names. The trade names can be added, in parenthesis, if they are considered important. Keep one copy of the paper.

Footnotes and References: Use the style of the *Index to Dental Literature* published by the American Dental Association, which requires, in the order given: name of author, title of article, name of periodical, with volume, pages, month—day of month if weekly—and year as follows:

1. JONES, J. E.: Silicate Cements, J. Dent. Child., 21:79-93, 4th Q. 1954.

Include only those references specifically referred to in the text.

Reprints: An order slip for reprints with a table showing cost will be sent with the galley proof to each contributor.

Illustrations: A reasonable number of illustrations are allowed without cost to the author. Place the name of the author on the back of each illustration, table, etc. Submit clear and distinct, glossy photographs. Make drawings in black ink on white paper. Attach a slip of paper to the bottom of the illustration with the author's name, identification of article, and appropriate legend. Identify the top of the illustration. Photographs and drawings will be returned if so requested.

Under ordinary circumstances articles are scheduled several months in advance. Notice will be given the contributor when the article has been accepted and again before publication.

Prescriptions for Pedodontics*

DUANE A. SCHMIDT, D.D.S.

THROUGHOUT the world the dental profession is being bombarded by the radioactive fall-out of an educational explosion chiefly in five categories: high-speed instrumentation; elaborate equipment design for patient comfort; new and more precise dental materials, time-motion studies and the more effective utilization of auxiliary personnel. And yet there is one phase of dentistry, the ethical drug field, which has been grossly neglected. It is unfortunate, for prescription pharmaceuticals when judiciously employed, may be most helpful in augmenting the efficacy of dental services.

Dentists notoriously write very few prescriptions. Doctor Held, of the University of Michigan School of Dentistry, emphasized this in a lecture before the University pharmacy college.[1] He noted that today's 72,000 practicing dentists write less than 1 per cent of all prescriptions. Personal conversations with pharmacists readily bears this out. The motivation of 27 State Pharmaceutical Associations in recently publishing and distributing free to dentists a dental formulary supports this premise. The continued acceptance of the Merck Manual, the Accepted Dental Remedies publication, and the burdened postmen currently bearing armloads of prescription pads, samples and flyers from drug houses about the country add further evidence of increased need and possible desire.

It is strange indeed that pharmacology is not better accepted and used more frequently by the dental profession, for no science offers dentistry a more abundant helping hand than does the pharmaceutical profession.

Fear Prevents Prescription Writing

The apparent reluctance of dentists to employ drugs by prescription probably stems from fear. Fear of subordinating the physician by usurping his long-standing prerogative to use the written prescription in health service; fear of possible adverse sequelae from prescribing a drug to which a hidden allergy may be present; fear of writing an incorrect prescription. In short, fear, based on a gap in the teaching of dentistry, is the greatest deterrent to the effective use of prescriptions.

Dentists are highly intelligent professional people, characterized by an inquisitive nature, artistic ability and an innate individualism. A fear of prescription writing and a mental vacuum in the ethical drug field is highly incongruous in view of these general attributes.

Writing a prescription is no more difficult than many of the complex procedures dentists may use during the course of their practices. If the dentist will apply himself to the methods and benefits which may accrue from prescriptions, he will realize the simplicity with which he may add to his practice the use of pharmaceuticals. His efforts at study in this phase of dentistry will be even more rewarding when he recognizes that ethical drugs will bring his patients more comfortable dentistry, a hastened recovery and less apprehension.

* Presented at the 98th Annual Session of the Iowa Dental Association.

Let us consider the aspects of Pedodontics that may be reenforced by the judicial selection of prescription medication.

Prescriptions Useful in Fear Control

The control of fear is one of the most important phases of Pedodontics. It is in fear control that the dentists, especially those dealing with the child patient, faces the supreme test. If the dentist can conquer fear he can open broad new vistas for his child patients. If fear subdues him and the child, both will suffer immeasurably.

The external approach to fear control is noted in the atmosphere of the dental office and the personality of the dentist. It encompasses the aura established in the rooms of the office through lighting, color, music, odor, and furnishings. It includes the auxiliary personnel, uniforms, sounds produced in dental procedures, and timing of appointments relative to blood sugar levels and fatigued conditions of the child and the dentist.

The internal approach to fear control is that method utilizing drugs known as sedatives, hypnotics and ataractics or tranquilizers.

The unpredictability of the sedatives and hypnotics is a great distraction to their popular usage. Exact dosage is difficult, requirement ranges vary widely, and induced excitement or deep depression often accompany their use. In essence, this class of pharmaceuticals is less than ideal for pre-operative fear control.

A class of drugs known as ataractics or tranquilizers, reported by Kopel,[2] offer great promise to Pedodontics in the establishment of a state of "quiescence" without depressing respiration or circulation, without the bothersome side effects of nausea, vomiting or dizziness, and yet allowing the patient freedom to respond to stimuli without overaction.

Moreover, by not using drugs that chemically depress our patients, we use the same principle we follow by not strapping down the patient or physically repressing him. Freedom of the patient to react is vital in promoting acceptable behavior patterns and in building the patient's confidence in himself. Confidence is the most effectual fear-destroying mechanism we may induce.

Representatives of the ataractics would be:

℞:[3]
Meprobamate 200 mg.
Such tablets No. 24
Sig: One (1) tablet three times a day for two days before dental appointment & one hour before appointment.

℞:[4]
Hydroxyzine (syrup) 10 mg. per 5 cc.
Disp. three fluid ounces.
Sig: 3-5 tsp. at hour of sleep plus
3-5 tsp. one hour prior to appointment.

These drugs may open new fields of opportunity for the high-strung, emotionally disturbed, or neurotic child who expresses his problem through poor behavior. The prescriptions presented are examples which may need modifying for the individual child.

Prescriptions Useful in Pain Control

Pain relief is another area in which prescription drugs should play a leading role. Even here, however, the dentist often falls back on APC, aspirin or a proprietary product, when a more potent analgesic or narcotic would bring faster and more effective relief.

Reaction to pain may be an outgrowth of fear. The infant shows little response to pain; but as he grows in experience and stature, he may, through fear, mag-

nify an uncomfortable situation into a painful one.

The dentist is dedicated to the alleviation of pain and suffering. This is a paradox, for the ever-present enigma of our profession is that often we must *cause* some pain or discomfort to prevent *future* pain and discomfort!

If a dentist must of necessity produce some pain or discomfort, he should use the occasion as a building stone for the betterment of future patient cooperation. By helping his patients through a painful experience, by acclimating them to tolerate an uncomfortable situation, by actually reducing the pain and discomfort he will do much toward building patient confidence. Again, by building confidence he will be utilizing the greatest fear-destroying mechanism he may induce.

Beside the simple pain relievers the following could be included:

℞:[5]
Acetylsalicylic acid 5 grains
Codeine phosphate ½ grain
Such tablets No. 15
Sig: One (1) capsule each 4-6 hours as needed for pain.

℞:[6]
Codeine phosphate (or sulfate) ½ grain
Such tablets No. 12
Sig: One (1) tablet every 4-6 hours as needed for pain.

℞:[7]
Acetophenetidin 3 grains
Acetylsalicylic acid 2½ grains
Phenobarbital ¼ grain
Hyoscyamine sulfate 0.031 mg.
Such capsules No. 24
Sig: One (1) or two (2) capsules at 3-4 hour intervals.

℞:[8]
Dextro propoxyphene hydrochloride 32.0 mg.
Acetophenetidin 162.0 mg.
Acetylsalicylic acid 227.0 mg.
Caffeine 32.4 mg.
Such capsules No. 24
Sig: One (1) or two (2) capsules 3-4 times daily.

℞:[9]
Meperidine HCL 50 mg.
Such tablets No. 12
Sig: One (1) tablet every 4-6 hours as needed for pain.

Prescriptions Useful in Hastening Recovery

Another field in which a dentist should employ ethical drugs to his patient's advantage is that concerned with hastening recovery. Written orders to the patient have the particular advantage of impressing on him the importance of closely following his dentist's instructions to effect a recovery. Instructions for home care can mean the difference between diligence and neglect on the patient's part, not only because most patients can't or won't remember the detailed verbal instructions of their dentist but because the patient is impressed with the dentist's concern that the exact orders be executed for his specific dental benefit.

Other prescriptions in this area would include:

℞:[10]
Ascorbic Acid Tablets 50 mg.
Such tablets No. 30
Sig: One (1) tablet three times daily.
May be dissolved in orange juice or water.

℞:[11]
Thiamine Mononitrate 15 mg.
Riboflavin 10 mg.
Nicotinamide 50 mg.
Calcium Pantothenate 10 mg.
Pyridoxine Hydrochloride 5 mg.
Ascorbic Acid 250 mg.
Such capsules No. 30
Sig: One (1) capsule three times daily.

℞:[12]
Blistex ⅛ ounce
Dispense one tube ⅛ ounce
Sig: Apply to affected region as indicated.

℞:[13]
Di-O-Chrome mouthwash
Dispense three (3) fluid ounces

Sig: Dilute with equal parts water and use as mouthwash.
Caution: Do not swallow.

℞:[14]
Penicillin V Potassium 125 mg.
Such tablets No. 12
Sig: One (1) tablet four times a day.

℞:[15]
Erythromycin 100 mg.
Such tablets No. 12
Sig: One (1) tablet four times a day.

Here, as in other classes of pharmaceuticals, new drugs are constantly appearing in the frantic search for antibiotics, vitamins, oral rinses, salves, lotions, and toothpastes to hasten recovery.

Miscellaneous Prescriptions

There are other prescriptions in a miscellaneous classification which dentists may use. A fluoride may be prescribed as an ingested fluoride, especially in families where well water or city water falls below the recommended 1.2 ppm.

℞:[16]
Sodium Fluoride 2.21 mg.
inert material 1.5 Gr.
Such tablets No. 180
Sig: One (1) tablet every other day after breakfast swallowed whole or dissolved in water or juice.

First, the dentist may have the water tested for fluoride or consult a public health bulletin for the fluoride content of the municipal water supply; then, with this fact in hand, he may prescribe the desired amount of fluoride to adequately supplement the total fluoride intake. Thus his patients may have the benefits of fluoride regardless of the water supply.

Other preparations may find a place in the capacity of a "reminder" for small fry enamored with the wet end of a thumb! When these young folks have arrived at an age when one may reason with them; when they will admit they would like to stop their digital habits; when the parent will regularly allow his child to use the prescribed medication; then the paint-on habit reminders may possibly have a place in pedodontics such as:

℞:[17]
Tincture of Capsicum fluid drams 4
Tincture of Asafetida fluid drams 4
flexible collodion fluid drams 4
M and shake well; place in 2 fluid dram applicator bottles.
Sig: Have child place on thumb or nails repeatedly as directed.
(Makes six bottles of 2 fluid drams each.)
(Dispense from office or write prescription.)

A Charge to Dentists

It has not been the intent of this paper to categorically list all the pharmaceuticals that can offer assistance to dentistry; nor should it be inferred that to practice good dentistry a dentist must develop writer's cramp at the prescription pad. A dentist should never write a prescription without prior study of the medication involved, or without consideration of the value of the drug in light of the needs of the patient.[18]

It is hoped that this paper will be a stimulus for the dentist to consider the ready access of that other pair of hands waiting to serve his practice. Those hands are the skilled hands of his pharmacist, a professional man who will help dentistry extend its services beyond the four walls of our offices.

Our patients will be happier through adequate control of fear, through control of pain, and by hastening their recovery. They may also feel more secure in using something offered by us for their own personal problem or situation, which is the psychology of the prescription.

We should be ever mindful of our responsibilities to our patients to utilize whatever means are at our command to treat, correct, or prevent dental deformity and disease. Prescriptions in Pedodontics are some of those means.

504 Carver Building
Fort Dodge, Iowa

BIBLIOGRAPHY

1. Remarks quoted from Dr. Held of the University of Michigan School of Dentistry, Dental Survey, April, 1960.
2. KOPEL, H. M.: The Use of Ataraxics in Dentistry for Children, J. Dent. for Child., 26:14-28, 1st Q., 1959.
3. Equanil© (Wyeth Laboratories)
   Tablets: 400 mg., 200 mg.
4. Atarax© (J. B. Roerig & Co.)
   Tablets: 10 mg., 25 mg.
   Syrup: 10 mg. per 5 cc.
5. Aspirin with Codeine (no specialty product known).
6. Codeine phosphate (or sulfate) available in 1/8 grain, 1/4 grain, 1/2 grain or 1 grain tablets.
7. Phenaphen© Capsules or Tablets (A. H. Robbins Co., Inc.).
8. Darvon© Compound Capsules (Eli Lilly & Co.).
9. Demerol© (Winthrop Laboratories)
   Tablets: 50 mg. and 100 mg.
10. Ascorbic Acid Tablets (Abbott Laboratories)
    Tablets: 50 mg. and 100 mg.
11. Allbee© with C. Capsules (A. H. Robbins Co., Inc.).
12. Blistex© (Blistex Inc., Chicago, Ill.)
    Ingred: Phenol, Menthol, Ammonia in a special base.
13. Di-O-Chrome© (Warren-Teed Products Co.)
    Ingred: Sodium Dichromate, Boric Acid and flavors.
14. V-Cillin K© (Eli Lilly & Co.)
    Tablets: 125 mg. (200,000 Units); 250 mg. (400,000 Units)
    Pediatric: 125 mg. (200,000 Units) per 5 cc.
15. Ilotycin© (Eli Lilly & Co.)
    Tablets: 100 mg., 250 mg.
    Pediatric: 200 mg. per 5 cc.
16. Karidium© Tablets (the Lorvic Corporation) one tablet in solution will yield approximately 1 mg. (fluoride ion).
17. Thumbsucking medication—Dr. Wm. Humphrey, Denver, Colorado.
18. For authoritative sources, check with Accepted Dental Remedies, Iowa Dental Formulary, Merck Manual, United States Pharmacopeia, New and Non-official Remedies, and National Formulary.

Restorative Procedures for Children With Ectodermal Dysplasia

FLOYDE EDDY HOGEBOOM, D.D.S., F.A.C.D.

FOR well over forty years I have watched, with mounting appreciation, the increased concern and attention by the dental profession to the care of growing children. In this paper we shall focus our attention on the operative and prosthetic restoration of children who have been denied the normal number of teeth with which to masticate. We will not go into the etiology and full discussion of the factors of heredity and environment having to do with ectodermal dysplasia. There are many fine papers devoted to this and we have listed several in the bibliography.

FIGURE 1. Boy age 14. Note the peg-shaped incisors and rudimentary permanent first molars.

Ectodermal Dysplasia—a rather rare condition—affects males eight times more frequently than females. The characteristics of ectodermal dysplasia are grouped in three features, (1) hypotrichosis, (2) anhidrosis, (3) anodontia.[1]

Secondary manifestations in varying degrees are: abnormality of the nails; hyperpyrexia; deficiency of the lacrimal, pharyngeal, conjunctival and salivary glands; rather thick and everted lips; depressed saddle-nosed appearance; atrophic rhinitis and dysphonia.

Weech is credited with the appellation "anhidrotic ectodermal dysplasia."[2]

There may be total anodontia or partial anodontia. Thoma[3] analyzed the condition as follows:

"Ectodermal dysplasia is due to the suppression of the development of ectodermal tissue in general and a suppression of dental ectoderm in particular. In its most severe form it results in total aplasia of the dental lamina and complete absence of tooth development. If the ectodermal development is affected later in fetal life, the dental lamina may have formed and produced buds for the enamel organs of the *primary* teeth. In such cases the second dentition only is suppressed, the entire genetic force of the anlage having been consumed in an effort to produce the *primary* set. In still other cases the aplasia of the dental lamina is incomplete and allows the

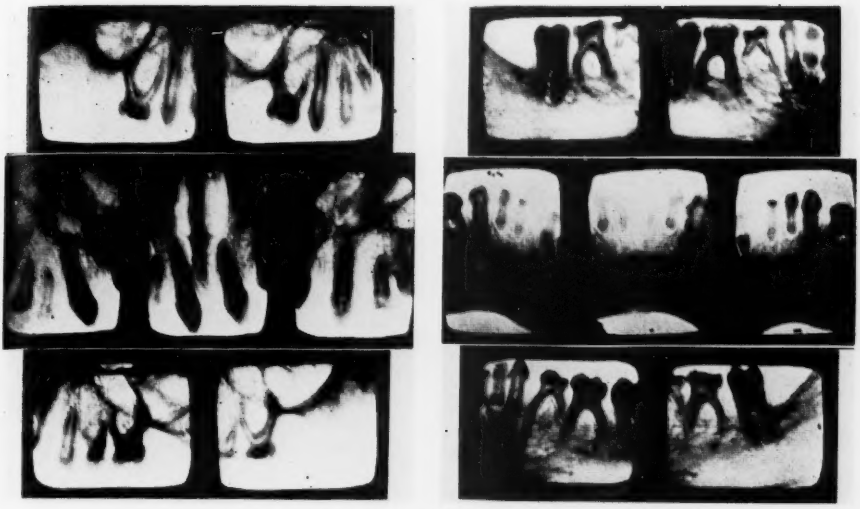


FIGURE 2. Radiographs of Case I boy.

formation of a few teeth in either the maxilla or mandible; there is however generally insufficient vigor of this tissue, and hyperplastic forms as a result, the teeth having a rudimentary cone-shaped appearance. We therefore may distinguish: (1) Total anodontia affecting both the *primary* and permanent dentition. (2) Total anodontia affecting only the permanent dentition. (3) Total anodontia with a few peg-shaped teeth due to incomplete suppression.

"These teeth may be distinguished as follows:

(a) In the mandible, the maxilla being edentulous.

(b) In the maxilla, the mandible being edentulous.

(c) In both jaws.

(d) Unilateral anodontia, the jaws being edentulous on one side, both containing teeth on the other. This is generally associated with under-development of the affected side of the face, unilateral baldness, and under-development of the rest of the affected side of the body."

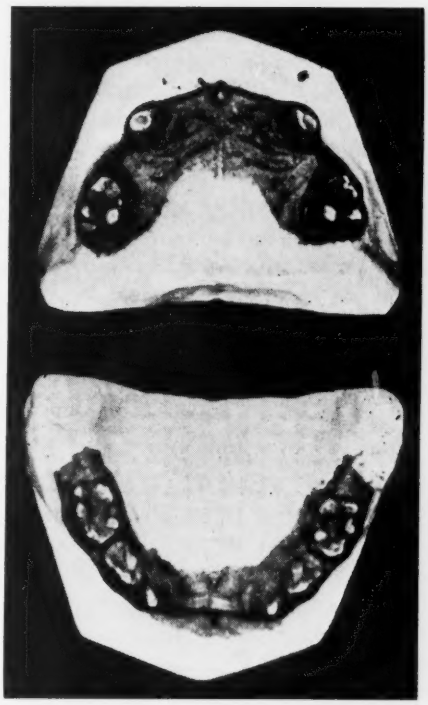


FIGURE 3. Boy, age 4. Partial anodontia.

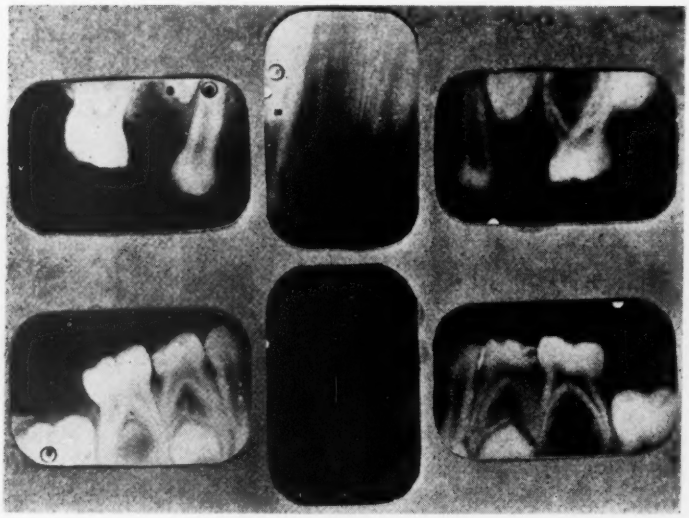


FIGURE 4. Radiographs of Case II. Partial anodontia.

We are listing several cases of ectodermal dysplasia representing various methods of handling the dental restorative requirements. Since these cases go back many years in my practice, I do not have a complete history of the hereditary contributions or some influencing characteristics.

Case I

Figure 1 shows a model of a boy fourteen years old. The cast shows upper peg-shaped central incisors and lower first molars, the only permanent teeth present. The x-rays, Figure 2, show the absence of all other permanent teeth. This would be classed in the second category of Thoma's grouping of ectodermal dysplasia. At the time I saw this boy he was able to masticate his food fairly well.

Case II

This case was a boy aged four and one-half years when I first saw him. His appearance was good and the characteristic facies was not marked. He was stone deaf, which his parents attributed to an attack of meningitis. We worked with him for about three years when he was killed by an automobile because of his inability to hear.

Figure 3 shows the boy aged four and one-half years, with upper primary central and lateral incisors and first primary molars congenitally missing. The lower primary central and lateral incisors are also missing. Radiographs, Figure 4, show the permanent central and lateral incisor missing in both jaws.

We felt that for a child of that age the placing of a horseshoe vulcanite denture (this was before the time of acrylic) would be very easy, but the possible breakage and loss would mitigate against its use.

The lower space was replaced with a bridge with pins and tube joints in the center line to permit growth to take place. As there were more teeth missing in the maxilla, a pin and tube bridge

was placed with distal bridge units, with broken stress lugs to permit removal and growth. Interestingly enough, the growth of the maxillary bone carried the upper anterior teeth apart until the pins were practically out of the tubes. Figure 5. *This was a dramatic illustration of the growth of base bone in the absence of permanent teeth.* It was necessary to replace the bridge and place central and lateral incisors of adult size. The teeth used for attachments were not cut in any way except for the lower cuspids, where discs were used to get through the contact points. Compound impressions were then made and cast in hard gold. The crowns were left without occlusal surfaces so that the band removing pliers could be used to remove the band in case of breakage or accident. Figures 6, 7. The bands were fitted to place and compound impressions taken; then the bridges were made on the models. The latest method of impressions would now be used. Since Steele's crowns were used, we had some breakage. Now that plastic is available the problem of breakage would be very rare.

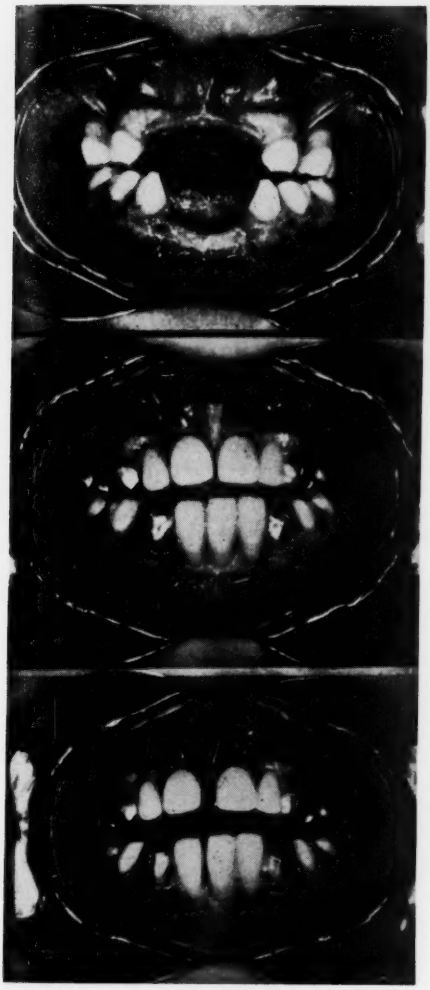


FIGURE 5. Upper picture before appliances were placed. There is a difference in age between the middle and lower pictures of approximately two years. Note the separation at the pin and tube joint due to lateral development.

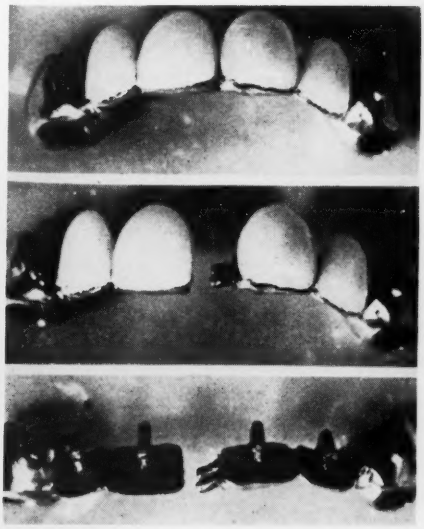


FIGURE 6. The upper anterior bridge showing the pins and tubes. Note the Steele's facing. Plastic teeth would be used now.

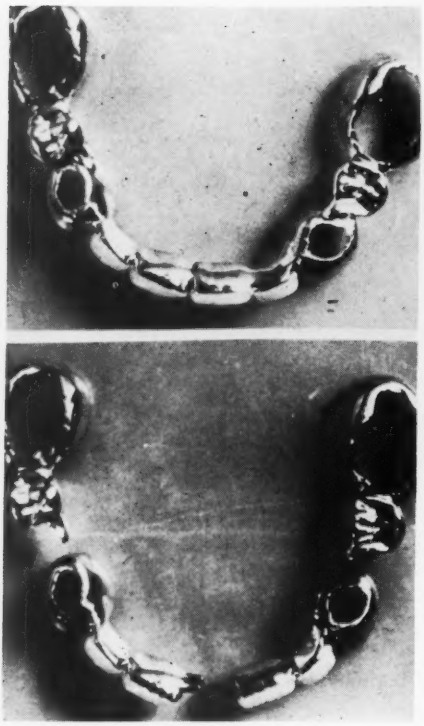


FIGURE 7. The upper detachable fixed bridges.

FIGURE 8. Boy age 3 with partial anodontia.

Case III

This boy was three years old when I first examined him. Figure 8. He had congenitally missing lower incisors and bicuspids, upper laterals and bicuspids. Figures 9, 10. There were present at this age primary upper and lower second molars and upper and lower primary cuspids. This case would be in the Thoma third classification.

FIGURE 9. Case III, boy age 3. Partial anodontia.

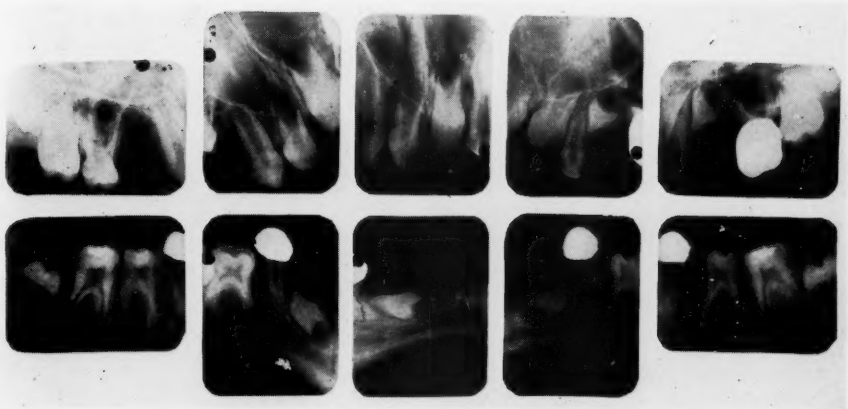


FIGURE 10. Case III, boy age 7. Partial anodontia.

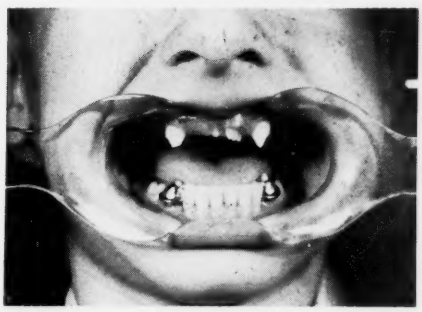


FIGURE 11. Age 8, lower partial in place. Upper anteriors just erupting.

FIGURE 13. Upper acrylic partial and lower gold base partial in place.

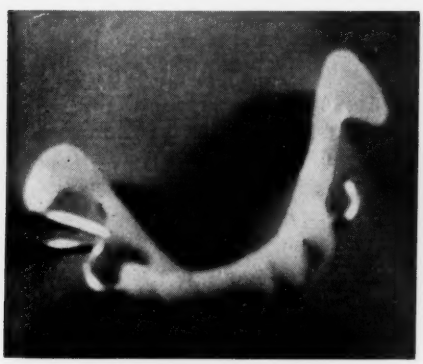


FIGURE 12. Lower acrylic partial.

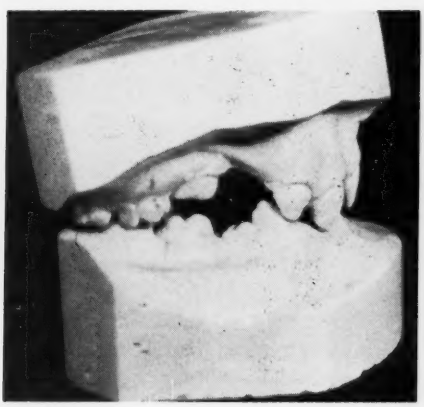


FIGURE 14.

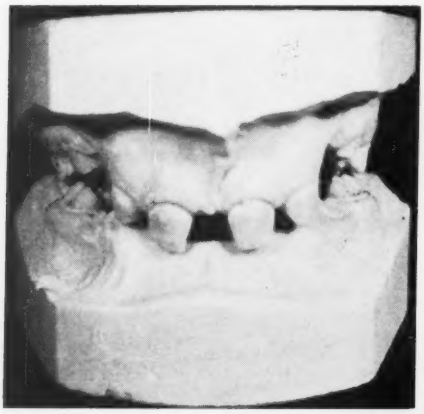


FIGURE 15.

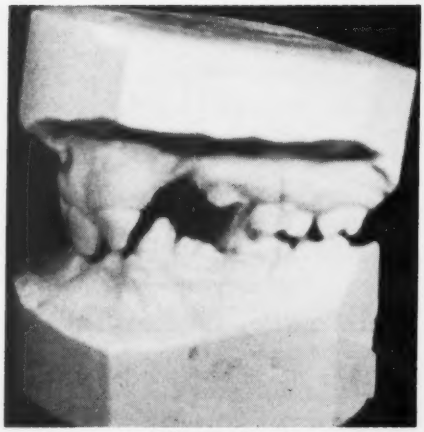


FIGURE 16.

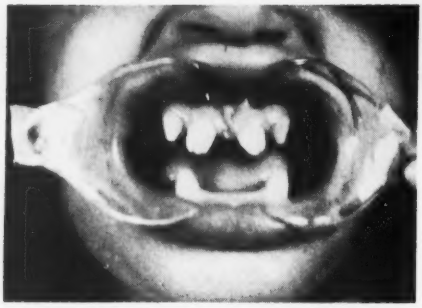


FIGURE 16A. True Ectodermal Dysplasia, Anhidrotic Type. Boy age 10, with partial anodontia.

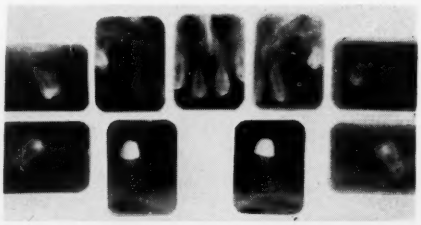


FIGURE 17. Radiographs—Case IV, Figure 16.

FIGURE 18. Upper and lower gold base partials in place.

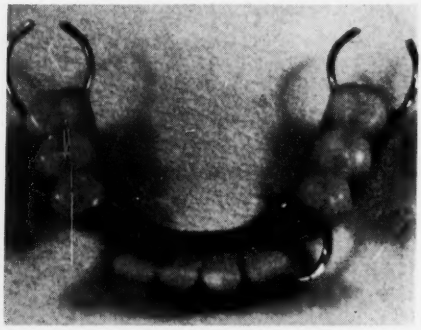


FIGURE 19. Lower gold-acrylic partial denture.

As he grew older we found he had upper hypoplastic permanent central incisors, upper and lower cuspids, the upper right being impacted, and upper and lower first and second permanent molars. Figure 10.

About four years of age we constructed a lower acrylic partial. He said he "wanted to bite a round hole out of a sand-

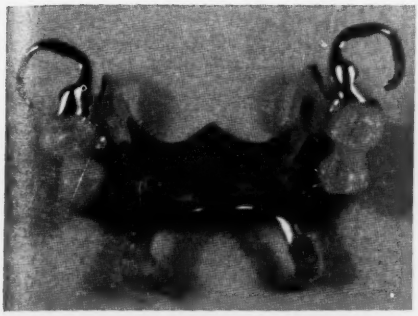


FIGURE 20. Upper gold base partial denture.

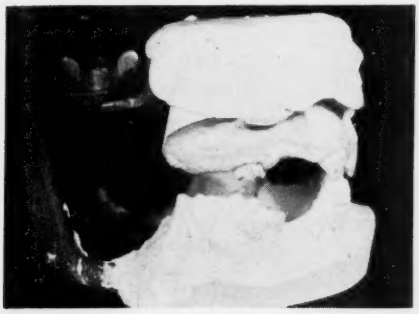


FIGURE 21. Due to body and facial growth, the bite has opened approximately three-eighths of an inch, requiring complete dental rehabilitation.

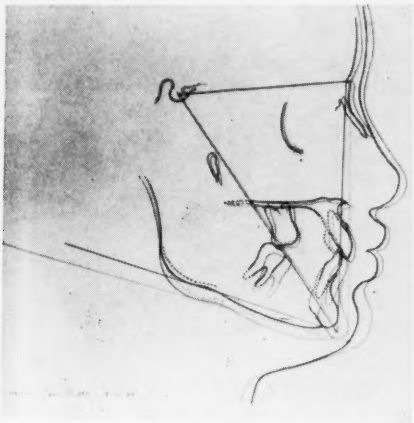


FIGURE 22. Cephalometric tracing showing the facial growth from age 13 to age 17.

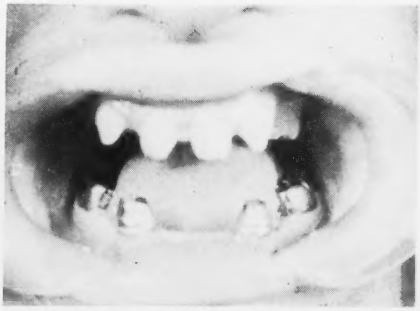


FIGURE 23. Chrome crowns fitted to the molar teeth protecting against caries and giving firm attachment to clasps.

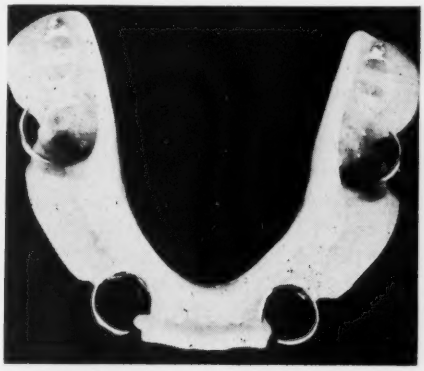


FIGURE 24. Lower appliance with metal truss work to fit over chrome crowns and cuspid ring crowns.

FIGURE 25. Upper appliance with lugs to fit in slots on upper cuspid crowns and clasps to fit over chrome crowns on molars.

FIGURE 26. Model showing jacket crown preparations. The chrome crowns were placed after the anterior bridge was placed.

wich like the other children." We placed gold castings on the lower cuspids with slots to hold the found wire clasps; then upper and lower acrylic partial dentures were placed. Figures 11, 12.

Three years later a lower gold acrylic partial denture and acrylic upper partial were constructed. Figure 13. As he grew older the facial growth had changed the jaw relationship and the bite opened. This required additional changes. Figures 14, 15. Note the lack of normal alveolar growth in the bicuspid area.

FIGURE 27. Upper plastic metal truss work fixed bridge in place.

About age fourteen he had moved away but his jaws had changed so much that he was referred to a dentist in his home vicinity for further correction.

Case IV

This young man was first examined by me on July 23, 1952, at the age of ten, Figure 16. He has all the typical facies, skin, sparse hair, and eye reactions of ectodermal dysplasia. He does not sweat, and in hot weather goes down to the ocean to keep cool. The teeth present were upper and lower first permanent molars, upper and lower peg-shaped permanent cuspids and upper hypoplastic central incisors widely spaced. No other permanent teeth were present in the jaws. Figure 17. Gold castings were placed on the lower cuspids and

FIGURE 28. Palatal view showing slots on posterior of cuspid crowns which receive the lugs on the partial.

a gold acrylic lower partial denture was placed. Figures 18, 19, 20.

Because of the wide spaced central incisors, we had him wear an upper acrylic appliance with finger springs and moved them together, after which an upper gold base partial denture with plastic teeth was placed. Figure 18. This he wore for six years when, because of his growth and development, a

complete rehabilitation was necessary.

The contact between the upper and lower molars had opened approximately three-eighths of an inch. Figures 21, 22. We planned to make gold castings for the molars in the form of full slip-over crowns. However, we decided that raising the bite this much would put too much stress on the molars with their not too strong roots.

We carefully contoured chrome alloy crowns to the molars, not trimming or cutting the enamel. We were able to get a good fit because of the crown shape. Figure 23.

The lower partial denture was made first, the truss work being cast out of chrome alloy. We arranged molar clasps and bars resting on the occlusal surface and extended one molar tooth posteriorly. Using acrylic teeth, this lower partial with lay-on clasps has proven very satisfactory. Figure 24.

Next we prepared the two central incisors and two cuspids for jacket crowns. Figure 26. Our plan called for a fixed gold-acrylic bridge from cuspid to cuspid

FIGURE 29. Compare this result with Figure 18 and the psychological satisfaction is easy to understand.

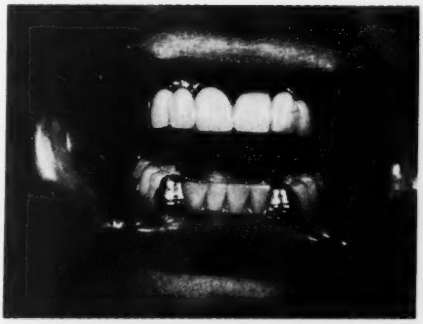


FIGURE 30. The completed restoration, a happy, self-confident young man.

with distal slots on the cuspids to receive the anterior lugs of the upper chrome partial denture. Figures 27, 28.

Permalastic was used to take the full upper impression. A second Permalastic impression was taken using the first impression as a tray. In this way we were able to get such an exact replica that the completed bridge went into place without a hitch. A Permalastic impression with the anterior bridge in place was taken and an upper chrome acrylic partial was made adjusting the occlusion with the lower partial already in place. Figure 25.

The resulting combination of upper anterior fixed bridge and lower and upper removable partial dentures has proven very satisfactory. Figures 29, 30.

We have searched the literature and find that there have been many full dentures and partial dentures made for anodontia cases, but this would seem to be the first case recorded where combination partial and fixed bridges have been used.

3780 Wilshire Blvd.
Los Angeles 8, Calif.

BIBLIOGRAPHY

1. Anodontia: Report of a Case Associated With Ectodermal Dysplasia of the Anhidrotic Type.

ROBERT GRANT, M.S., D.D.S., and HAROLD F. FALLS, M.S., M.D. American Journal of Orthodontics and Oral Surgery, Vol. 30, 1944, Page 661.

2. Heredity Ectodermal Dysplasia (congenital ectodermal defects). A report of two cases. American Journal of Diseases of Children, 37:766, April 1929.
3. Anodontia in Ectodermal Dysplasia, KURT H. THOMA, D.M.D., and FRED W. ALLEN, D.M.D., Boston, Mass. Page 503, Vol. 26, 1960 International Journal of Orthodontia, Oral Surgery and Radiography.
4. Ectodermal Dysplasia, Anhidrotic Type, Report of Case. LAREN W. TEUTSCH, D.D.S., and JOSEPH T. HARTSOOK, D.D.S., Ann Arbor, Michigan. Page 636, Journal American Dental Association, Vol. 36-37, 1948.
5. Anhidrotic Ectodermal Dysplasia With Anodontia, A Study of Two Families. FRANK E. EVERETT, D.M.D., M.D., ELLIS B. JUMP, D.M.D., PH.D., WALLACE F. SUTHERLAND, D.M.D., BHIN SEN SAVARA, B.D.S., L.D.S., M.S., and THEODORE SUHER, D.M.D., Portland, Oregon. Journal American Dental Association, Page 173, Vol. 44-45, 1952.
6. Several cases of Multiple Ectodermal Dysplasia, M. PITIS, V. STANESCO, S. LEIBA and V. ILONESCO (Bucharest), Ann. Pediat. 35:649-654 Feb. 24. (Year Book of Dentistry 1959-1960) page 127.
7. Practical Pedodontia. FLOYDE E. HOGEBOOM, D.D.S., F.A.C.D. Sixth Editon, C. V. Mosby Company, St. Louis.
8. Ectodermal Dysplasia. ANTHONY IPPOLITO, D.M.D., Lawrence, Mass. Journal American Dental Association, April 1959, Vol. 58, No. 4, page 92.
9. The Occurrence of Ectodermal Dysplasia and Corneal Dysplasia in a Family. An Inquiry into the Mode of Inheritance, ALLAN H. KLINE, M.D., J. B. SIDBURY, JR., M.D., and C. P. RICHTER, PH.D., Baltimore, Md. Journal of Pediatrics, Sept. 1959, Vol. 55, No. 3.
10. BRODIE, A. G. and SARNAT, B. G., Ectodermal Dysplasia (Anhidrotic Type) With Complete Anodontia, American Journal Dentistry for Children, Vol. 64, pgs. 1046-1054, 1942.
11. Cephalometric Roentgenography of Infants: Sedation, Instrumentation and Research. SAMUEL PRUZANSKY, D.D.S., and EDWARD F. LIS, M.D., Chicago, Illinois. Journal American Orthodontic. March 1958, Vol. 44, No. 3, Page 159.
12. Hereditary Ectodermal Dysplasia of the Anhidrotic Type—Review of the Literature and Case Report. SIDNEY B. FINN, D.M.D., M.S., New York State Department of Health, Albany, New York. Journal of Dental Research, Vol. 23, No. 3, Page 214, June 1944.
13. The Effect of Early Dental Treatment of Anhidrotic Ectodermal Dysplasia. MUSHANG BORJIAN, D.D.S., Corpus Christi, Texas. Journal American Dental Association, Vol. 61, No. 5, Nov. 1960, page 35.
14. Fourteen-Year Report of Facial Growth in Case of Complete Anodontia with Ectodermal Dysplasia. BERNARD G. SARNAT, M.D., D.D.S., ALLAN G. BRODIE, D.D.S., PH.D., and W. HOWARD KUBACKI, D.D.S., Chicago. American Journal of Diseases of Children, Vol. 86, No. 2, August 1953, page 162.
15. Anhidrotic Hereditary Ectodermal Dysplasia. Report of two cases in a brother and sister. J. B. SEAGLE, M.D., Urbana, Illinois. Journal of Pediatrics, Vol. 45, No. 6, December 1954, page 688.

NOTICE

The next examination and meeting of the American Board of Pedodontics will be held October 30-November 2, 1961, at the University of Michigan School of Dentistry, Ann Arbor, Michigan.

Further information is available from Dr. Ralph Ireland, Secretary, at the School of Dentistry, University of Nebraska, Lincoln, Nebraska.

Pedodontic Psychology and Premedication

HOWARD ADUSS, B.S., D.D.S.,* RODNEY S. BANE, B.A., D.D.S.,*
LARRY L. LANG, D.D.S.*

I. PSYCHOLOGY

Introduction

TO understand the individuality and relative maturity of children, it is necessary to study the underlying processes of development. Behavior does not just happen, it is motivated. A child's behavior is based on his needs, his feelings, and his past experiences, as well as the current situation.[1]

Emotional growth in a child is not an even, steady process. Different children do not mature emotionally at exactly the same rate, nor with exactly the same manifestations. In general, however, certain broad "norms" can be established for emotional maturation.[2]

By recognizing the limits of each child's learning ability at various age levels, the dentist's approach to child management may be made compatible with the experience of the individual youngster. An understanding of the unique development experienced in infancy will enable one to evaluate more properly some of the overt actions exhibited by the child in later years.

The Infant

Prior to birth, the child is essentially a parasite attached to the host (mother) by a placenta. Postnatally, the child is confronted with new responsibilities, i.e., a postponement of needed satisfaction, increasing independence, and complex learning tasks.[3]

The infant is equipped with the capacity to react to various stimuli, e.g. loud sounds, loss of support or separation, and pain. Other fear reactions which a child may acquire during the growing process are built-up or conditioned reflexes.

Somewhere near the end of his first year, the child begins to show signs of readiness for "training." The two year old youngster organizes his experience through touching, handling, etc. He is too young to be reached by words alone and is not sufficiently advanced to permit any long-sustained interpersonal relations. There is a tendency to be shy and considerable dependence is placed upon the mother. This age group usually responds to simple commands and questions.

The Preschool Child

The three year old youngster tries to please and conform. If given a good reason, he will frequently cooperate in things he does not like to do. This child is quite susceptible to praise and possesses a newly found spirit of independence. He may respond well to verbal directions and is capable of sensible group activity.[1]

The preschool years are a period of rapid physical growth with overt behavior predominantly egocentric. The pronoun "I" is most frequently used in oral communication. The development of the senses, the ability to do and accept things during this period of interaction with objects, people, and situa-

* Dental Fellow, Eastman Dental Dispensary, Rochester 3, New York.

tions creates the psychological self. Overt actions are unpredictable because of the continuous mental transition.[4]

The School Age Child

Entering school produces another important developmental cycle for the youngster. His primary occupation becomes social maturation with a gradual expansion of outside activities. The five to six year old child is capable of self-criticism, loves praise, and can usually distinguish between truth and falsehood. The pre-adolescent years are an age of competition, with positive interest in all mechanisms. The adolescent is very intent on developing his own personality. He demands attention and is very susceptible to those adults who show a genuine interest.[1, 5]

Normal child behavior is determined not only by age or level of maturity, but also by sex, environment and parental influence. Boys more frequently display tantrums and outbursts of rage. They normally exhibit a greater aggressiveness.[1] Girls have or are trained to manifest, a more socially acceptable feminine-sensitive nature, cry more easily, and often may be encouraged to take an earlier interest in appearance.

The Home

The child is to a large measure a product exemplifying home environment and parental attitudes. To ignore the variations in conduct, experience and teaching of parents is to ignore a very important factor bearing on child behavior. In a very simplified form, overprotection may result in irresponsible behavior and refusal to yield to any authority. Overindulgence may result in a "spoiled child" who is demanding, while over-anxiety may produce timidity, shyness, and possibly fear.[1] These responses may also be manifested by other parental attitudes, e.g. domination, criticism, etc.

Behavior

Overt behavior is motivated by the desire to satisfy what psychologists have defined as basic psychological needs. These include (i) a need for physical security, (ii) a need to be loved (emotional security), (iii) a need to have or realize personal worth (status), and (iv) a need to make meaning out of experience.[2]

If physical security is threatened, the child may react with aggression or anxiety. His actions may take the form of an attack on the problem or flight from the situation, with continued intactness of the individual as the aim. The child's reaction will be determined by his mental attitude, previous conditioning and experience. A lack of emotional security, i.e. a sense of being wanted, being accepted, belonging, may result in poor behavior traits as the child's response to a world in which he cannot find love and affection.

A child's need of status may be fulfilled if one develops a genuine respect for the child as a person. One can dispel a superior-inferior atmosphere by listening attentively. Inability to earn status with his peers may be reflected as either aggressive or retiring behavior.

The child's incessant "why" is intimately related to his exploratory drive to make meaning out of experience. The new territory, the unfamiliar, must be known. The unexpected and unfamiliar does not allow for preparation and organization, and thus catches the inexperienced or young individual without appropriate and effective responses. As a result, the youngster is overwhelmed with a feeling of helplessness and fear. As the unfamiliar becomes familiar, fear

is usually mitigated. Although children learn from both good and bad experiences, safety lies in knowing and uncertainty leaves the individual without a framework to build experience. Life does not make sense—man tries to give it logic and this logic must be transferred to the child. For this reason, questioning by the child should be encouraged and the answers should be realistic.[3, 6]

Inappropriate behavior is inevitable when the child's environmental background is inadequate for his developmental needs or is in advance of his psychological maturation. Behavior manifestations cannot be taken at face value. Normally, children are not naughty out of sheer cussedness; their behavior grows out of their attempts to meet their needs.[4, 7]

Fear

Fisher[8] defines fear as, "an emotion occurring in situations of stress and uncertainty wherein the person experiencing it sees himself as threatened or helpless and whose reaction is to resist or flee the situation out of anticipation of pain, distress or destruction."

A youngster's fears disrupt the ordinary flow of experience and make unfit his ability to perceive new situations in their proper perspective. His fears may spring from imagination, unfounded beliefs or actual situations over which he has no control. Children up to two years of age show no apparent fear except the aforementioned (loss of support or separation, loud noises, and pain). By three years, the child may show some hesitation and caution; after four years, definite fear responses may be present.

How may the child's fears be managed? Gesell[9] offers two ways by which fear situations may be regulated. First, control the child from without by modifying the things toward which he is sensitive, i.e. the environment and its fear producing stimuli. Second, control the child from within, at the time of his responses to these stimuli.

It is necessary to distinguish between an acute fear of the situation as perceived, and a chronic fear of personal failure, the latter stemming out of a perception of the self as inadequate and ineffectual. In treating a child one should attempt to determine if the youngster's reaction is a fear of treatment, or is it a fear that he will not measure-up in this situation because he feels lacking in the necessary resources to cope with stress?[8]

Familiarization modifies emotional intensity. Emotion is a disorganized response as opposed to intelligence which is an organized response. Preparing the child for a new situation is perhaps the most effective method of reducing fear.

The psychologic growth of the child is a product of his inherent potential and environment. The conditioning received through contact with his environment can be controlled and developed. A favorable environment ensures the optimal expression of his inherent potential; an unfavorable environment may retard or pervert its full expression.[1]

II. MANAGEMENT

The Office

The first thing the child uses in judging the dentist is his office. The atmosphere created in the reception room will most likely be the attitude carried into the operatory. Therefore, it is important to let the child know that he is welcome in the office. All concerned with pedodontic management agree that some portion of the waiting room be set aside for youngsters. This may include only

a few small chairs and a table, a toy box with toys for several age groups, children's books, or a bulletin board with pictures drawn by young patients. Nothing makes a child happier than to have something of his very own on display and satisfactory behavior during the visit could be a requirement for having a picture placed on the bulletin board.

The Assistant

After the reception room, the assistant becomes the next new experience for the child. The assistant must enjoy working with children. Her friendly greeting and confident air are the requirements necessary to secure the child's acceptance of her and the office. Her tone and instructions to the child are the first step in establishing rapport.

Explanations of some of the office procedures, general rules and that which will be accomplished during the first visit can be explained to the patient by the assistant while the youngster is shown around the operatory or sitting in the chair. The first appointment thus changes from a "fear of the unknown" to something new and pleasurable.

The Dentist

Children are individuals, as are dentists. Specific examples cannot be given for the way each child will behave, just as definite patterns for each dentist to follow cannot be described. One can only establish certain criteria that pedodontists have found helpful in their management of children.

Lamons[10] gives three general rules which will be considered and amplified:

(i) The dentist must have a sincere appreciation of the value of good dentistry for children. To this one must add again that he must understand children. If a dentist does not feel the need for good dentistry for children, he is obliged to refer these patients.

(ii) The dentist must take the time to understand the child. The child's problems (personal, social, scholastic, etc.), though seemingly small, may be his most prominent thought when he presents for treatment. A few minutes of allowing the youngster to talk will go a long way toward securing his friendship, confidence and trust. These last goals (friendship, confidence and trust) are the ultimate aims in establishing an excellent patient-doctor relationship. This can be accomplished when the child has trust and confidence in his dentist. All approaches to child management are directed toward overcoming and eradicating previously conditioned fear responses.[3] Every patient wants to feel he is something special to the dentist; the dentist should try to make him feel he is special.

(iii) The last of Lamons'[10] rules is simply to have patience, lots of it! Patience is the greatest gift of the successful pedodontist. Its application will be discussed in the various approaches to the management of young patients.

The Parents

There remains one last consideration before attention can be concentrated on the child. Hagman[11] suggests that an average of 44 per cent of children's fears can be related to the mother's fears. In those cases where an anxious parent presents with the child, one can expect a certain amount of this anxiety to be transferred to the child.

We have seen children who never received any prior treatment, yet display extreme anxiety through the most cautious and gentle procedures. With dis-

creet questioning one finds the child's sibling or parent has created a horror-filled image of dentistry. It may take several visits and a great amount of patience to dispel these fantasies. For a good child patient then, educate the parents first.[12] Further discussion of parent education will be mentioned in conjunction with child management.

The New Patient: First Dental Appointment

The first patient to be considered is the new patient. The assistant has obtained some of the patient's personal history during the telephone conversation concerning the first appointment. At first meeting then, the dentist and assistant magically know the child's name, hobbies, likes and dislikes.

With patience on the part of the dentist, during an appointment to complete the examination, radiographs and prophylaxis, the child should be prepared for operative or other required treatment to follow.

The Apprehensive Patient

The next patient can best be described as the apprehensive child. This youngster is frightened. The clinician has two problems with this patient: (i) to overcome the child's emotional problem, and (ii) to accomplish the necessary dental treatment. It would be useless for the dentist to attempt any type of treatment without first putting the child at ease.

The clinician's first concern is to determine the cause of the fear.[12] Overheard conversations concerning dentistry between adults, the exaggerated stories of other children or any number of things may have triggered the imaginary mind of the child and created a fear of dentistry

In these cases, the parent, provided he himself is well adjusted and dentally educated, may be helpful. The presence of the parent in the operatory reassures the child he has not been abandoned.[8] Of course, it should be made clear to the parent that when in the operatory, he assumes the role of an invited spectator and contributes only his presence.

With the apprehensive patient, the dentist performs his duties with utmost confidence. He proceeds slowly, following Addelston's example of "tell, show, do."[12]

Careful explanations using simple language, a firm yet gentle tone, and the ability to perform the examination in a smooth confident manner, all aid the child in assessing the idea of becoming the dentist's friend and trusting him in the future.

The youngster comes to the office for dental treatment, but a discussion of one of his favorite interests during the early appointments goes a long way in convincing him the dentist is human and not quite as bad as he may have imagined.

Upon completion of the first appointment, find some way to compliment the patient on his behavior.[8, 10, 12, 13] Every child likes to please and be noticed. The dentist's mention of his good behavior will strengthen his confidence in approaching dentistry.

The Emergency Patient

Under either of the previous headings (the new patient and the apprehensive patient) the picture can be further complicated by placing these patients in an emergency status. The emergency may take the form of pain or physical trauma. In any event, some definite treatment will have to be accomplished and one

can be sure the patient does want help.

The emergency patient, in his desire to be relieved of pain, will more readily forgive the dentist for a short uncomfortable procedure than will another patient. The dentist should do all he can to help this patient through a difficult experience.

With this in mind, the dentist can proceed under the code "tell, show, do," up to a point. In explaining the required treatment to one of these patients the dentist must not lie. A simple statement declaring that sometimes a procedure may be a little uncomfortable will not have the same connotation as the word pain or painful. Many words can be used to aid the patient. A tooth can be removed rather than extracted; a tooth may be prepared, rather than ground; or a tooth may be put to sleep, rather than "we'll give you a needle or shot."[14] All these terms tend to dispel disturbing images in the patient's mind, thereby making the course of treatment more acceptable.

Hand signals are very helpful between the dentist and assistant, especially for anesthestic syringes. One of the first things to which a child is introduced post-partum is the hypodermic syringe. When treating children, a small syringe which can be palmed is preferable to the large carpule type. The use of topical anesthetics is wise.

The Negative Patient

The last patient to be considered is the child who does not desire treatment. He was brought to the office under protest and does not want any part of the dentist or dentistry.

Lamons[10] classifies these children in two ways, (i) the temperamental and hysterical and (ii) the incorrigible. When associating with these two types voice control and control of one's emotions are the dentist's most important instruments.[15]

Although the patients have been categorized for purposes of discussion, caution should be used in making snap judgments and applying dogmatic empirical procedures to any patient, since each requires individual dental and psychologic treatment.

The temperamental and hysterical child usually is the outgrowth of a poor family environment. The dentist's approach to this patient is one of firmness. The child will probably have to be placed in the chair, and although the first appointment may be spent treating a crying youngster, the dentist maintains a soft quiet tone with an occasional smile. At the conclusion of the appointment, a reassuring word is very helpful.[8, 10, 12, 13]

The incorrigible child is truly the "spoiled brat." He has always had his own way and expects this to be true in the operatory. A firm convincing statement that anything he may do or say will not prevent the day's treatment from being completed is the positive approach to this patient. This is the youngster who will shriek and cry and who will have to be held. A towel placed over this patient's mouth to decrease the volume of the uproar will tend to convince him of your intentions.[10] The amount of therapy accomplished will depend upon the particular situation, but some form of treatment should be performed, no matter how small. The child will never know the clinician expected to complete a more extensive operation, if the dentist does not tell him. The child, therefore, leaves the office with the idea that what was to be completed was completed.

The Handicapped Child

With the handicapped child it is most important to consider the patient first and the handicap second.[16] The polio patient may present with an alert well-adjusted mental attitude. Provided his physical deformity is such that he can be comfortable in the dental chair, there is no reason why treatment cannot be accomplished in the office. Certain degrees of cerebral palsy, muscular dystrophy and other physically handicapping conditions may be associated with good mental attitudes and these patients deserve care in the office.

The reverse of this situation may also be true. The mentally handicapped without any physical deformity are in some cases very difficult to treat and may require sedation or general anesthesia.

Further Considerations in Management

Album[16] has established the total function of the clinician as regards children when he described the dentist's main concern as (i) the education of the child to accept dental treatment in a pleasant frame of mind, and (ii) the maintenance of a good dentition with physical and emotional needs always in mind.

Friendship, confidence and trust are the goals established for the successful completion of a pedodontic treatment plan. Album's criteria are thereby fulfilled.

Throughout this discussion "voice control" is stressed. No single factor will betray a feeling of insecurity or a lack of confidence more readily than vocal tone. The clinician should use a normal quiet tone with all children. There are more dentists afraid of children, than children afraid of dentists.[15] Do not let them know this.

To establish confidence, the doctor will do well to complete each treatment as rapidly and smoothly as possible. Do not keep the child waiting; know in advance what is to be accomplished; use sharp instruments and keep instrumentation to a minimum. If a planned treatment cannot be accomplished during an appointment, the dentist is the only one who knows this and he can change his procedure without "giving-in" to the child.

To gain the child's trust and thereby his friendship, for we befriend those we trust, the dentist must never lie to the child. The majority of clinicians have some prearranged signal for their patients to use if they wish them to stop some procedure. This signal should be honored immediately, even if it comes three times within the first thirty seconds of treatment. The youngster is probably testing the doctor's ability to keep his promise and temper.

III. PREMEDICATION

Introduction

Premedication, as an adjunct to a sound dental practice, can assist the dentist in solving many behavior problems by allowing the patient to more readily accept dental procedures. Proper use of a premedication should help to allay a child's apprehension, thereby making the appointment more comfortable. It is the individual dentist's responsibility to select the agent or agents which will place the patient in the condition the dentist finds most desirable for treatment. It is the purpose here to review the literature of recent years on the drugs used in pedodontics and to present a brief résumé of their properties and applications.

In order to do this, the drugs are

divided into four broad groups, the sedatives, the analgesics, the antisialogogues, and the tranquilizers. Each of these groups will be limited to those agents of widest current usage.

The Sedatives

The sedatives are made up of a vast number of agents including the barbiturates, chloral hydrate, paraldehyde, the bromides, etc. This discussion will be limited to the barbiturates which are most often used for sedation.

In general, barbiturates are central nervous system depressants with which almost any degree of depression may be obtained. This includes all levels from light sedation through deep hypnosis. The desired result in premedication is usually only sedation.

The degree of depression produced in a given patient will depend on the particular drug employed, its route of administration, and the dosage.

The two barbiturates most commonly used in pedodontics are pentobarbital (Nembutal) and secobarbital (Seconal). Oral administration is commonly indicated since both drugs are readily absorbed from the intestinal tract. An elixir is advocated for those who are too young to swallow a capsule.[17] Since these barbiturates are absorbed quickly, the resultant sedative effect is usually observable within thirty minutes. The side effects are minimal and sedative doses do not depress respiration in most cases. Occasionally, skin irritations appear upon administration.

Barbiturates are not analgesics in themselves, but may be used in combination with an analgesic for relief of pain; when combined with a narcotic, synergism results. Cheraskin[19] states that when barbiturates are employed to alleviate pain they may induce excitement and even delirium due to the release of cortical inhibition. The principal use of the short acting barbiturates is to produce sedation, thereby aiding in the elimination of apprehension and uncooperativeness.

The Analgesics

The second general group of drugs used in premedication is the analgesics. The natural opiate morphine gives excellent pain relief. Its usefulness is limited since it is given parenterally and has a long duration.[20]

The most commonly used drug for premedicative analgesia is the synthetic opiate, meperidine hydrochloride (Demerol). It produces an effective analgesia of three to four hours duration and a slight decrease in salivary secretion, though not as marked as the belladonna alkaloids. Oral administration is not especially satisfactory due to intestinal inactivation. Album[21] believes meperidine hydrochloride should be given intramuscularly to be effective, while Buckman[18] prefers a subcutaneous injection combining meperidine hydrochloride and scopolamine.

Side effects are not considered serious, but they may include nausea, dizziness, vomiting and pallor. Respiration and the cough reflex are somewhat depressed. Meperidine hydrochloride, when used as a premedicant, usually does not display the emetic effect of morphine. With continued use tolerance and addiction may become a hazard.

The Antisialogogues

A third group of drugs used in pedodontic premedication is the antisialogogues. Those agents that decrease salivary flow include: atropine sulfate, scopolamine bromide and methantheline bromide. Coincident with decreased se-

cretions, atropine also stimulates the cerebral and vital medullary centers unless given in large doses. As a result, it depresses vagal nerve endings and frees the heart of its usual inhibitory control, thereby increasing the heart rate.[22] Newton, et al.[23] concluded that atropine sulfate in the usual dose did not effectively diminish salivary volume during dental procedures in children.

Scopolamine, on the other hand, produces a short period of euphoria followed by a prolonged mild depression of psychic and motor centers. It has a peculiar amnesic action which may abolish the memory of events during induction. Scopolamine is known to reduce restlessness and excessive motor activity and its depressing effect on secretory nerve endings surpasses that of atropine.[22] This drug appears to be the agent of choice in a number of the studies reviewed on antisialogogues.[18, 22, 24, 25]

Newton and Morrison[23] state, "Methantheline bromide (Banthine) appeared to give the most rapid onset and greatest depression of saliva volume of the agents tested." This included tests with atropine and scopolamine. These investigators felt that scopolamine had a very slow onset (approximately ninety minutes), but that it could produce the greatest salivary reduction over an extended period.

Scopolamine may be given orally or subcutaneously, often combined with meperidine hydrochloride. Reported side reactions include slight dilation of the pupils and an occasional urticaria.

The Tranquilizers

The fourth group consists of those drugs under the broad heading tranquilizers. In some investigations they were studied individually, in others they replaced barbiturates in a balanced premedicative program which included meperidine and scopolamine. Only two tranquilizers will be considered here.

The first drug to be discussed is chlorpromazine (Thorazine). It is believed that this drug acts by offering protection from stress by altering the ability of the patient to respond to external aggression.[26] Its therapeutic value has been demonstrated by its ability to alleviate anxiety, to potentiate central nervous system depressants and produce profound antiemesis.

Complications include a hypotensive phenomenon at times associated with its parenteral administration. It is therefore not applicable to patients with either high, low or labile blood pressure patterns.

One study[27] in which chlorpromazine was used alone as a tranquilizing agent for dental procedures indicated its further use alone is not merited. It suggested that the receptive attitude of the tranquilized patient be used to indoctrinate him to a better acceptance of dental treatment.

The second tranquilizer to be considered is meprobamate (Equanil, Miltown). This drug possesses both antianxiety and muscle relaxant properties. Meprobamate, as well as chlorpromazine, may be administrated orally. A study of its use prior to operative procedures in adults demonstrated that the more anxious patients benefited significantly.[28]

Dosage

The wide variations in growth and emotional development between children makes it impossible for the clinician to adhere to standard doses or to strictly follow rules which determine dosage. Children require greater amounts of depressant drugs per pound of body weight than adults.[25] The more appre-

hensive the child, the less chance the dentist has for successful premedication. One must think in terms of a formula which will provide a sufficient dose to produce the level of sedation desired.

Different clinicians will use somewhat varied dosages and even different combinations of drugs in an attempt to find the result they are seeking. Discussion of each clinician's variations will not be presented, suffice to say, a combination of the aforementioned drugs is preferred (a sedative, an analgesic, and an antisialogogue) and has been used with a good percentage of success in pedodontics.[18, 24, 25, 29]

The authors believe that Album's[24] approach may provide a good base line. At the first visit, he determines the dosage that will be used. At the next visit, this dose is given preoperatively. If at the time treatment is to begin, there is no beneficial result, an additional smaller dose is given. If after one half hour, there is still no result, the sum total of these drugs will be used as an initial dose at the following appointment.

It is the dentist's singular responsibility to try individual or combinations of drugs at their recommended doses until he determines the dosages which will produce the optimum results he desires.

Further Considerations of Premedication

Up to this point, little has been mentioned about the type of child who will benefit most from premedication. There are some children who cannot or will not cooperate with the dentist; these are the patients who may be aided by this approach.

There are many factors to be considered before drug therapy is instituted. As was previously brought out, the personality of the dentist. the child's past experience with dentistry, the attitudes of his parents toward dentistry, the environment of the home and the office may affect the child.

It is very important that premedication be given to the child only when accompanied by an adult. Obviously, this is done to protect the child from postoperative injury. The parent must be advised to watch for unsteadiness, that the youngster may sleep for the remainder of the day and be very thirsty on awakening. Barbiturates may take from twenty-four to thirty-six hours to be totally excreted.

Conclusions

1. By fully understanding the growth-developmental characteristics of children, the dentist can succeed in pedodontics. With such knowledge, one has a genuine awareness of the child's continuous engagement in the task of adapting his basic developmental needs to the conditions of his external environment. By recognizing a youngster's individuality, emotional state, status, fears, needs, and environment one can produce an asset to his practice.

2. A review has been presented of the basic principles in the psychologic or "common sense" management of the pedodontic patient. It can be stated unequivocally that every child presents a unique individual personality and the dentist's success in treating children will be proportional to his knowledge of child development.

3. Consideration has been given to the most common premedicants used in pedodontics. It is the individual clinician's responsibility to select those drugs which will produce the sedative effects he desires.

BIBLIOGRAPHY

1. Brauer, J. C.: Dentistry for Children, Chap. 3, 3rd ed., McGraw-Hill Book Co., Inc., N. Y., 1952.
2. Lamons, F. F.: Psychology and children's dental practice. J.A.D.A. 25:553-560, April, 1938.
3. Fisher, G. C.: Growth and development of the child. J. Dent. Child. 25:69-83, 2nd Q., 1958.
4. McSwain, E. T.: The dentist and his young patient. J. Dent. Educ. 11:216-223, April, 1947.
5. Easlick, K. A.: The dentist's management of young children, Int. J. Ortho. Dent. Child., 21:78-88, January, 1935.
6. Fisher, G. C.: Theoretical aspects of fear. J. Dent. Child. 22:38-40, 1st Q., 1955.
7. Laycock, S. R.: Problems in doing dental work for children. J. Canada D. A. 12:379-385, Sept., 1946.
8. Fisher, G. C.: Management of fear in the child patient. J.A.D.A. 57:792-795, Dec., 1958.
9. Gesell, A.: Guidance of Mental Growth in Infant and Child. The Macmillan Co., N. Y., 1930.
10. Lamons, F. F.: The office management of children. Int. J. Ortho. Dent. Child. 21:268-270, March, 1935.
11. Hagman, R. R.: A study of the fears of children of preschool age. J. Exptl. Educ., 1, 1932.
12. Finn, S. B.: Clinical Pedodontics, Chap. 2-3. W. B. Saunders Co., Phila., Pa., 1957.
13. Waterman, G. E.: Child management. J. Dent. Child. 21:150-153, 3rd Q., 1954.
14. Morrison, G. A.: Personal communication.
15. Youngs, R. S., and Schmitt, F. M.: The child, the dentist and fear. J. Dent. Child. 27:41-43, 1st Q., 1955.
16. Album, M. M., Davies, G. N., and Gelmon, S. R.: Treatment of the difficult child. Int. Dent. J. 8:475-495, Sept., 1958.
17. Ruble, J. W.: An appraisal of drugs to premedicate children for dental procedures. J. Dent. Child. 19:22-29, 1st Q., 1952.
18. Buckman, N.: Balanced premedication in pedodontics. J. Dent. Child. 23:141-153, 3rd Q., 1956.
19. Finn, S. B.: Clinical Pedodontics, Chap. 7, W. B. Saunders Co., Phila., Pa., 1957.
20. Ruble, J. W.: Personal communication.
21. Album, M. M.: Premedication for difficult children. J. Dent. Child. 22:48-56, 1st Q., 1956.
22. Antoni, A. A., and Henny, F. A.: Scopolamine as a preoperative sedative in children. J. Oral Surg. 15:192-194, July, 1957.
23. Newton, N. W., and Morrison, R. D.: The effects of antisialogogues on children. J. Dent. Child. 26:347-350, 4th Q., 1957.
24. Album, M. M.: General anesthesia and premedication in dentistry for children. J. Dent. Child. 24:215-223, 4th Q., 1957.
25. Album, M. M.: Sedative, analgesics and belladonna derivatives in dentistry for children. J. Dent. Child. 26:7-13, 1st Q., 1959.
26. Rosencrans, M.: An evaluation of chlorpromazine as an aid in premedication of the ambulatory anesthesia patient. Oral Surg., Oral Med., Oral Path., 11:47-50, Jan., 1958.
27. Shamer, D. H., Sanders, D. J., and Dobbs, E. C.: Tranquilizers in dentistry for children. J. Dent. Child. 25:269-273, 4th Q., 1958.
28. Lampshire, E. L.: Balanced premedication. J. Dent. Child. 26:5, 1st Q., 1959.
29. Holle, R.: Personal communication.

Comparison of a Single Application of Stannous Fluoride With a Single Application of Sodium Fluoride or Two Applications of Stannous Fluoride*

VICTOR H. MERCER, D.D.S.,** AND JOSEPH C. MUHLER, D.D.S., Ph.D.

PREVIOUS clinical studies have shown that a single application of an 8 per cent solution of stannous fluoride significantly reduces the incidence of dental caries in the permanent teeth of children.[1-7] A single application of a 10 per cent solution of stannous fluoride has also reduced the incidence of dental caries in adults.[8] A single application of an 8 per cent solution of stannous fluoride has been found to significantly reduce the number and severity of dental caries in children residing all their lives in an area where the communal water supply contains the optimal amount of fluoride.[9] In addition, a recent study conducted by a pedodontist under those clinical conditions of a routine office practice has shown the marked anticariogenic effectiveness of the single application technique when using stannous fluoride.[10] Taken collectively, these studies would suggest overwhelming evidence in support of the clinical effectiveness of the single application technique when using stannous fluoride. However, it is one of the objects of preventive dentistry to eliminate, if possible, dental caries, and since the present procedures using stannous fluoride are not completely effective, it is important to learn if increased anticariogenic benefits could be obtained by giving a second application of stannous fluoride.

Experimental

Approximately 600 children, ranging in age from 6 to 14 years, were divided equally into 4 groups according to past dental caries experience and dental age.[11] All of the children were pupils in the Pendleton, Indiana School System. All of the children received a thorough dental prophylaxis and a clinical examination at the beginning of the study and one year later. The clinical examinations at both periods were performed by the same dentist (VM) using portable dental equipment, good light, new explorers, and dental mirrors.

Immediately following the initial prophylaxis, the children in Group II received a single application of a 2 per cent aqueous unbuffered solution of sodium fluoride, and those in Group III a single application of an 8 per cent aqueous unbuffered solution of stannous fluoride. The children in Group IV received two applications of an 8 per cent solution of stannous fluoride, the second of which was applied within 48 hours of the first, according to the technique described by Muhler.[12] Only the first application was preceded by a prophylaxis. The children in Group I served as controls and received only a prophylaxis and no topical application of fluoride.

* The study was supported in part by Grant No. DT-10 from the Department of Health, Education, and Welfare.

** U.S.P.H.S. Postdoctorate Trainee. Department of Biochemistry, Indiana University Medical Center, Indianapolis 7, Indiana.

Data and Discussion

The dental caries balance in the four groups of children is seen in Table I. It is found from an examination of these data that excellent balance occurs in all of the four groups when estimated by the initial DMFT or DMFS indices, or the number of permanent teeth present.

TABLE I

A Comparison of the Various Groups at the Initial Examination According to DMFT, DMFS, and Number of Permanent Teeth

Group	*Initial No.*	*Mean DMFT*	*Mean DMFS*	*Mean Total No. Permanent Teeth*
Control	199	4.40	6.48	14.74
1 application NaF	201	4.52	6.51	14.82
1 application SnF_2	201	4.41	6.47	14.81
2 applications SnF_2	201	4.50	6.54	14.98

The dental caries data obtained in this study are found in Table II. The group receiving the single application of distilled water had a mean caries increment of 1.24 new DMF teeth and 2.59 new DMF surfaces. The children in Group II, which received a single application of sodium fluoride had 1.25 new DMF teeth and 2.54 new DMF surfaces. These data show that the single application of sodium fluoride had no effect whatsoever on the caries experience. These data confirm the findings of other investigators which have shown that at least four applications of sodium fluoride are required in order to demonstrate a reduction in dental caries. The group receiving a single application of stannous fluoride had 0.62 new DMF teeth and 1.26 new DMF surfaces, or a reduction in dental caries of about 50 per cent when either indices is used and when compared to the group tested with distilled water. These differences are highly significant as shown by their low probabilities. These data similarly confirm many previous studies which have shown the marked anticariogenic effectiveness of the single application technique using stannous fluoride.

Of considerable interest is the group which received two applications of stannous fluoride. In this group there were 0.58 new DMF teeth and 1.21 new DMF surfaces, a difference of 53 per cent for both indices when compared to the group treated with distilled water. Both of these differences are highly significant statistically. It thus appears that a second application of stannous fluoride is

TABLE II

A Comparison of the Dental Caries Increments During a One Year Period in Four Groups of Children Receiving Topical Applications of Either Stannous Fluoride, Sodium Fluoride, or Distilled Water

Group	*No. of Children*	*Caries Increments*		*% Difference*		*P**	
		DMFT	*DMFS*	*DMFT*	*DMFS*	*DMFT*	*DMFS*
Distilled Water	152	1.24	2.59	—	—	—	—
1 application NaF	151	1.25	2.54	—	—	—	—
1 application SnF_2	154	0.62	1.26	50	51	0.001	0.0012
2 applications SnF_2	152	0.58	1.21	53	53	0.0014	0.0012

* Based upon student "t" test.

not associated with any further reduction in dental caries as afforded by the single application, at least when the second application follows the first by only a day.

The frequency of reapplication of the stannous fluoride is a point of considerable interest. It is generally considered prudent to repeat the application in respect to the caries pattern of a particular patient and not attempt to generalize for all patients. For example, in a highly susceptible child (20-30 new surfaces a year) the single application should be repeated approximately each six months. For a child with a low susceptibility (2-5 new surfaces a year) a single application once a year will probably suffice. It is important, however, to stress the fact that whenever a prophylaxis is performed, a reapplication of stannous fluoride is indicated. Considerable evidence points to the fact that not only does the pumice in the prophylaxis paste remove considerable protection from the teeth following the use of topical stannous fluoride, but also the use of abrasives in dentifrices reduces the length of effectiveness of topical stannous fluoride.[13] Of real interest in this regard is the finding that the use of a stannous fluoride containing dentifrice* augments and prolongs the effectiveness of topical stannous fluoride therapy. Apparently the stannous fluoride dentifrice not only reduces the loss of stannous ions from the enamel following topical therapy but it increases the amount of tin present as well as further increases the antisolubility of the enamel.

* *Crest* brand dentifrice.

REFERENCES

1. Gish, C. W., Howell, C. L., and Muhler, J. C.: A New Approach to the Topical Application of Fluorides for the Reduction of Dental Caries in Children. J. Dent. Res., 36:784, 1957.
2. Gish, C. W., Howell, C. L., and Muhler, J. C.: A New Approach to the Topical Application of Fluorides for the Reduction of Dental Caries in Children With Results at the End of Two Years. J. Dent. for Child., 24:194, 1957.
3. Gish, C. W., Muhler, J. C., and Howell, C. L.: A New Approach to the Topical Application of Fluorides in Children With Results at the End of Four Years. J. Dent. Child., 26:300, 1959.
4. Gish, C. W.: Unpublished data.
5. Compton, F. H., Burgess, R. C., Mondrow, T. G., Grainger, R. M., and Nikiforuk, G.: The Riverside Pre-School Project. Canad. Dent. Assoc. J., 25:478, 1959.
6. Jordan, W. A., Snyder, J. R., and Wilson, V.: Stannous Fluoride Clinical Study in Olmsted County, Minnesota. Public Health Report. 73:1010, 1958.
7. Jordan, W. A., Snyder, J. R., and Wilson, V.: A Study of a Single Application of Eight Per Cent Stannous Fluoride. J. Dent. Child., 26:355, 1959.
8. Muhler, J. C.: The Effect of a Single Topical Application of Stannous Fluoride on the Incidence of Dental Caries in Adults. J. Dent. Res., 37:415, 1958.
9. Muhler, J. C.: The Anticariogenic Effectiveness of a Single Application of Stannous Fluoride in Children Residing in an Optimal Communal Fluoride Area. II. Results at the end of 30 months. J.A.D.A., 61:431, 1960.
10. Rothhaar, R.: Topical Stannous Fluoride in a Pedodontic Practice. J. Dent. Child., 27:140, 1960.
11. Muhler, J. C., Radike, A. W., Nebergall, W. H., and Day, H. G.: The Effect of a Stannous Fluoride-containing Dentifrice on Caries Reduction in Children. J. Dent. Res., 33:606, 1954.
12. Muhler, J. C.: Single Topical Stannous Fluoride Application Technique. J. Dent. Child., 25:306, 1958.
13. Muhler, J. C.: Effect of Stannous Fluoride Dentifrice Following Topical Stannous Fluoride Application on Dental Caries and Enamel Solubility in the Rat. J. Dent. Res., 38:1236, 1959.